

# ccj COMMERCIAL CAR JOURNAL

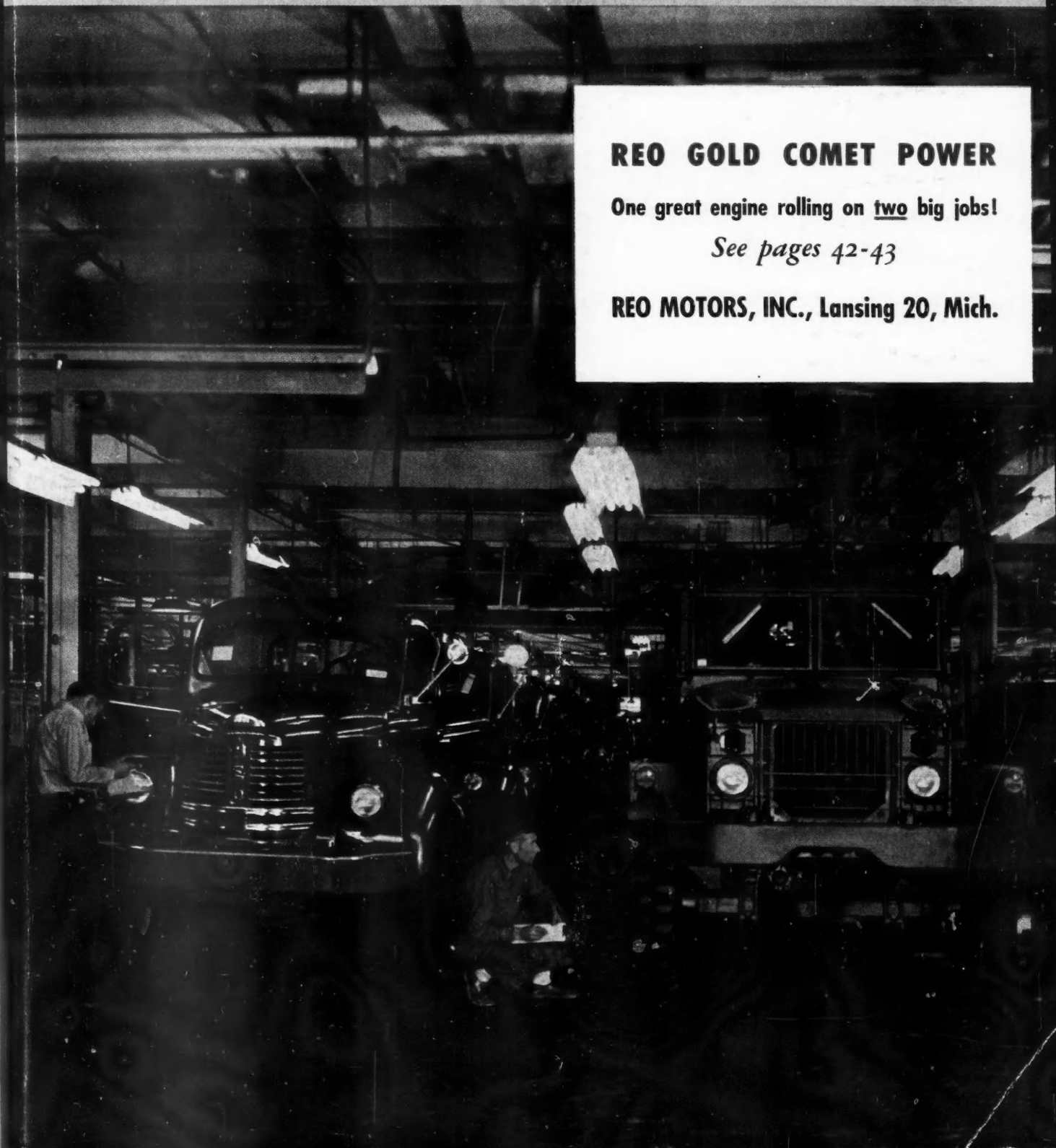
THE MAGAZINE FOR FLEET OPERATORS

## REO GOLD COMET POWER

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*See pages 42-43*

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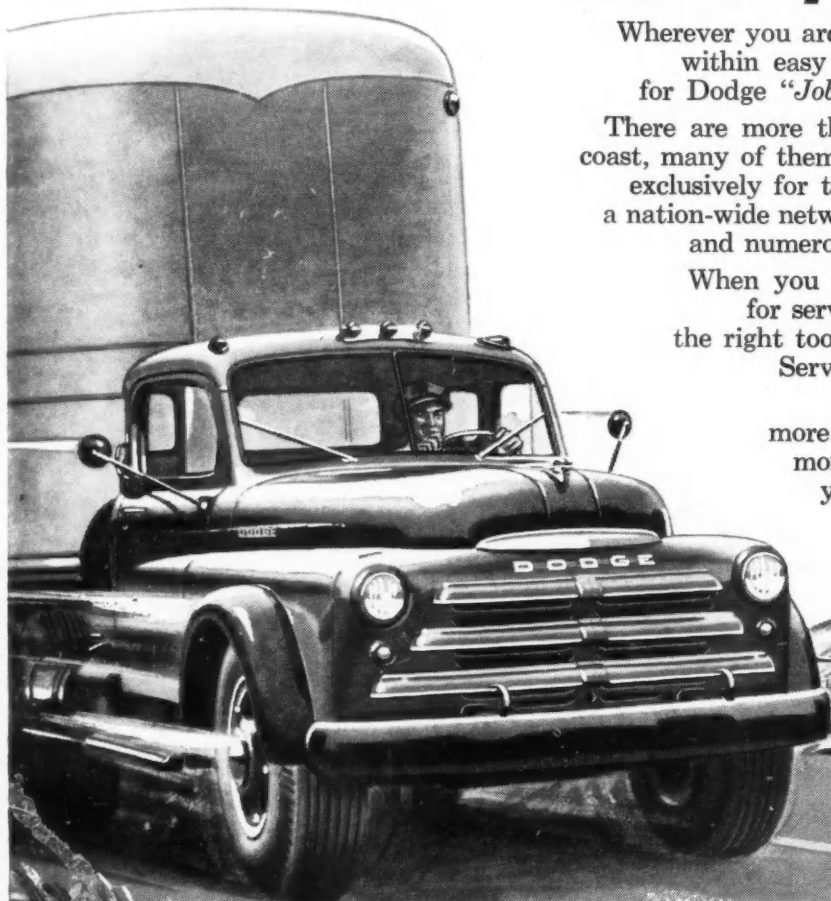
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# COMMERCIAL CAR

Vol. LXXX Philadelphia, September, 1950 No. 1

## EDITORIAL CONTENTS

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## CCJ Reader Digest

### At Your Service

CCJ is at your technical service with this new department prepared by our technical editor in the interests of improving maintenance and saving money for the fleet operator. This material, taken from experiences in and around fleets, from service suggestions of individual manufacturers, from technical papers and discussions held the country over, is designed to bring home important PM routines and maintenance practices that can be adapted to your fleet. In the coming months you will find scores of "short cuts" that will assist your men. Make this department a reading habit. See page 14.

### Maryland Road Test Raises Questions

Here is an interim report on the truck transportation industry's most important event in recent years—a project that has been personally inspected by scores of the country's most distinguished highway engineers, automotive equipment manufacturers, top railroad executives, and politicians—some of whom may have a voice in the nation's future transportation policies. Here's what they have seen: As of July 31, the test road has 102 cracks that were not there at the beginning of the test; the 22,400-lb and the 44,800-lb trucks caused most of them; pumping is extremely bad, with 104 "pumpers" on one section alone. There have been criticisms of the maintenance of the test road and criticisms of the vehicles. This article brings the answers to them direct from the test officials. See Page 64.

### Cushman's Coaching Cuts Accidents 40%

To do a thorough job of safety, Cushman Motor Delivery Co., Chicago, set up a safety team comprising a safety director who was a no-accident driver for 14 years, a personnel manager, and outside safety patrols. This team, working with a new set of driver selection, training and checking standards, cut accidents by 40 per cent last year. See page 62.

# JOURNAL

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## Custom-Styled Bodies

Noted body designer E. M. Westberg brings to CCJ readers a new feature—how fleets can assemble distinctive truck bodies using standard prefabricated body parts, sections and hardware. It is not necessary to have truck bodies that look like any other fleet's. Distinctive designs are possible at little or no added cost of standard bodies, says the author and he will endeavor to prove it with original designs. For his first contribution see page 56.


## Sales Language Sells Salesmen Safety

Safety directors sometimes despair that drivers do not respond to continuous safety campaigns. They strive to find a new angle to add "punch" to the necessarily repetitious safety message. General Foods has found a new angle that cut the 1948 rate of 3.3 per cent by 29.8 per cent at the end of 1949. For details of the program see page 51.

## Bus Maintenance Productivity

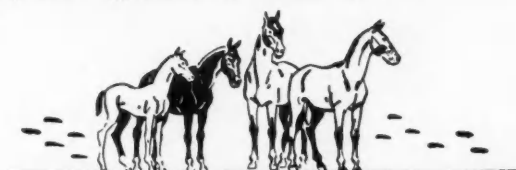
Over the years many attempts have been made to provide some method by which the productivity or efficiency of bus maintenance could be presented so that comparisons would be available among transit companies. The American Transit Association's Small Operations Steering Committee finally compiled pertinent data from 73 properties that, in part, meets this need. For CCJ's analysis of the data see page 54.

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## **Lubricants and Fuels** FOR THE TRUCKING INDUSTRY

# CONFERENCE C O R N E R

PRESENTING FACTORY ENGINEERS' VIEWS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

## **Subject: Winter Treads**

## **Question: Are There Advantages?**

CCJ asked tire manufacturers to comment on the advantages or shortcomings of winter treads for truck tires from the standpoints of increased traction, cost, mileages, efficiency. They say . . .

### **Winter Tread is No Substitute for Chains**

by C. R. Mason

*The B. F. Goodrich Co.*

The winter tread in the truck tire produces a higher coefficient of friction than is ordinarily made available from the regular tire. This is particularly noticeable on wet and slippery pavements during the winter. The advantages on the frozen surface, as regards traction, are reduced somewhat; however, they are still better than the regular tire.

Tires molded with these wire inserts to produce the winterizing effect are priced at about 12 per cent higher than the regular tire. The mileage on tires of the winterized type (wire insert) compare favorably with the regular tread tires. The winterized tread is not as effective as the bar type of tread in mud. The winterized tread does not take the place of chains where the going is rough.

### **Operating Conditions Determine Use**

by Herb Wilson

*Goodyear Tire &  
Rubber Co.*

Each operation is a problem in itself. Operating conditions may warrant aggressive tread design on a new tire. Other conditions, in which traction is a primary requisite, may find a special retread to be justified even though tread life is sacrificed. There are a variety of designs available. Each company has its own tread designs for certain types of operations.

The individual operator must weigh the advantages and disadvantages of various types of tires and recapping and then decide for himself or by consultation with his tire supplier what course he should pursue for his fleets.

The studded or button type tread with wide open designs, have been developed for maximum traction and for this reason may sacrifice some mileage. Various other type designs, with and without a rib in the center, give as much mileage as the standard tire. Some tread designs which are exceptionally thick and have deep non-skid design often give as much as 50 per cent more tread mileage than do the standard tread tire.

It must be understood, however, that most of these tires are not designed for continuous highway use on high speed trucks. A few designs, such as the Goodyear Road Lug, are available for special use where conditions are favorable on the highway. Most of these are used in combined operations on the road and off the road. As a general rule, very complex or pronounced tread designs are not favored for highway truck operation unless there is a very large amount of either mud or snow.

None of the known tread designs will be as effective in furnishing traction as chains on ice and hard-packed snow. Many of these designs are very satisfactory in mud and unpacked or lightly packed snow. Operators in off-the-road service very seldom use chains because the very pronounced tread designs give them all the traction they need on their operation. These same designs are also effective on highways covered with deep snow and mud or unpacked snow. Traction for these designs is not generally improved on wet pavements above that obtained from the standard type tire. Some highly specialized types have given increased traction, but are not to be considered good for general freight haulage on the highway.

In localities where there is very little snow and ice and only wet pavements to negotiate, there is no reason to apply any special tire. Properly designed treads on standard tires with reasonable traction elements will give satisfactory performance on wet pavements.

In sections where mud and unpacked snow are serious (TURN TO PAGE 10, PLEASE).



*cutting*

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**TRANSPORT**

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# Conference Corner

Continued from Page 6

ous problems, the aggressive tread designs like our Studded Sure Grip, Road Lug and Sure Grip are satisfactory. Only extremes in road conditions will stop them.

In places where ice and packed snow are predominant, tractionizing, Skid Rid, Polar Grip, wire coils, etc., give some added traction. None of them will take the place of chains under extreme conditions requiring maximum traction on grades.

## Our Regular Treads Provide Satisfactory Traction

by B. Herbert Lee  
*Lee Tire & Rubber Co.*

In the passenger car line we have developed the Lee winter/summer tire which is designed specifically for winter driving. This tire, with its patented features, has received excellent reception by car owners everywhere; and in

many cases, the use of this tire eliminates the need for chains.

In the truck tire line, however, we have not felt it necessary to specifically design any one tire for winter driving, as experience has shown we have a number of tread designs available which work very well—not only for normal or off-the-road use but also for winter driving under snow conditions.

## Mud and Snow Treads Offer Several Advantages

by Douglas Mueller  
*Seiberling Rubber Co.*

Winter treads provide traction under circumstances where conventional treads will not. They permit one to continue operating when winter conditions, or bad mud conditions, might cause ordinary treads to slip.

The original price is about 10 to 15 per cent above conventional-tread tires. However, because most mud-snow treads present less rubber in contact with the road, these threads wear faster than conventional treads. Therefore, the cost per mile is quite a bit higher. But—the net cost to the operator may be lower because of the fact that he can send through trucks which might be otherwise tied up because of the inadequate traction of conventional treads.

Almost any kind of cleated or studded tread will wear a great deal more rapidly than a conventional tread on hard pavements. This is because (a) there is less rubber supporting the load, therefore this smaller amount has more "work" to do; and (b) the edges of the cleats or studs are scuffed off by constant scraping as the tire rolls on the pavement. Under soft mud or snow conditions, there is no appreciable tread wear on any type of tire, so the mud-snow tread will wear nearly as long, if all mileage is on this kind of surface.

Winter treads devised so far cannot replace chains under all conditions, in our opinion. However, they

make chains unnecessary under many conditions. If ice and snow conditions are extreme, chains are best because they bit into the ice. On light delivery vehicles which pull up to curbs, the studded or "knobby" type tread design is usually satisfactory to keep the vehicle going. Here again, however, chains may be necessary in severe conditions. "Winter treads"—meaning the cleated or studded type—are very effective in mud and soft snow. These same tires are not as effective as a conventional tread in hard-packed snow or glazed ice. This is because there is less road contact, and the cleats or studs don't bite into the ice. The other generally-known type of "winter tread"—the abrasive type, in which sand, sawdust, metal particles, or other gritty substances are worked into the tread rubber—is ineffective in combination with a conventional tread design when there is a soft mud or snow condition.

Tests by the National Safety Council have demonstrated that these tires (abrasive rubber, conventional tread) are slightly better in stopping quality on glazed ice, at low speeds. The Council reported that they are very little better at high speeds. We think the same general observations could be made with respect to wet pavements.

For light trucks, delivery vehicles, and other vehicles taking a small truck tire, the studded mud-snow tire is usually our recommendation. Naturally, we favor the design in our line because it has certain self-cleaning properties which we think are best. For highway-type vehicles, large trucks and other vehicles using a large tire, we recommend a close-lugged tire of a type we manufacture as best for all year around service. We feel it is the best compromise between the widely-spaced cleated tire and the conventional tire. The reports we have received on the performance of this tire (the Seiberling Traction Lug) indicate that operators are generally well satisfied with its winter traction qualities.

## In Some Cases Tires Are Superior to Chains

by Curt Muser  
*U. S. Royal Tires*

Special design tires commonly known as mud and snow types offer an operator increased traction in snow. For glare ice tread designs vary only slightly, if at all, in their ability to give traction or resist skidding. The traction

advantage referred to applies equally to starting or braking. In general the Mud and Snow type of tires are listed at 10 to 15 per cent higher than conventional highway tires.

Mileages of tires with treads designed particularly for increased traction in mud and snow normally give somewhat less mileage than regular highway tires. The reduced mileage is frequently due to a greater tendency to develop irregular wear. However, when the traction type design has a greater anti-skid depth, this can compensate for the reduction in mileage to which I have referred.

Under conditions such as packed snow where the tread components have full penetration, the mud and snow design tires are better than chains. Where the surface is hard, chains will cut into ice, or icy snow, to a greater degree than will tires alone and the chains will provide the superior traction. On wet pavements, tires are superior to chains.

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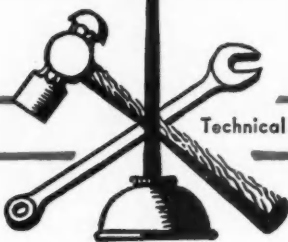
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# At Your Service

By M. K. SIMKINS

Technical Editor, Commercial Car Journal



## Fuel Pump Testers

Recently we have been asked to recommend a bench fuel pump tester that would satisfactorily substitute for testing on the vehicle. Obviously many fleets rebuild these units and want to know how they will perform before putting rebuilt ones back into stock.

Actually there is no reliable fuel pump testing apparatus that will take the place of a regular engine test. This has been substantiated by a leading manufacturer of fuel pumps and parts. There are entirely too many variables involved to depend upon a bench test; i. e., heat, distance from supply, relative position with respect to supply, carburetor float level setting, cam movement, etc.

It is known that a simple variable-speed motor driven pump test stand can be made up with a fixture to place the pump in the approximate position in relation to the cam—and so duplicate engine conditions to some extent. However, due to the above mentioned variables this will not give the reliable data desired.

Manufacturers agree that the pump can be checked accurately while mounted on the vehicle in a matter of minutes with a vacuum gage, tachometer and measuring can. The capacity and pressure test is a reliable guide to the mechanical condition of the pump.

## Block Distortion Problems

Many cases of scoring in cylinder walls, block distortion and ring sticking can be traced to the fit of the sleeves in sleeved engines. When the outside surface of the sleeve does not make good contact with the block, lubricant works up between the surfaces and interferes with heat transfer between the cylinder wall and the water jacket.

Installing sleeves oversize on the OD and reboring of the block to correct warpage is necessary to overcome troubles of this type. Toledo Steel Products Co. supplies copper-plated sleeves which are said to aid in transferring heat by increasing the metal-to-metal contact between the sleeve and cylinder wall.

## A Word About Anti-Freeze

It will soon be time to look over the supply of anti-freeze and get it ready for winter. Many operators have doubtlessly saved permanent types from previous

years. A check with suppliers of anti-freeze reveals that it is not always wise to reuse Ethylene glycol permanent types. One of the largest suppliers states that due to the chance of leakage and the introduction of air or corrosive exhaust gases into the system the rust inhibitor may be destroyed. Unfortunately there is no simple way to check for an acid condition in the anti-freeze, though litmus paper will show this condition.

It should be noted that not all the industry agrees with this recommendation, and the practice is not at all uniform in the fleet field. It amounts to this: if you have facilities for testing old anti-freeze, or if you can afford to take the risk of an acid anti-freeze, reuse it. If, however, you want the best protection, throw away the stuff you saved last spring.

## Of Brake Troubles and Wheel Bearings

Examination of many brake troubles reveals that many are caused by overlubrication of the wheel bearings, when excessive grease is forced out of the wheel hubs under pressure and heat, and saturates the brake liners.

Actually  $\frac{1}{4}$  lb of grease will be adequate for all but the largest size hubs. The bearings themselves should be packed by hand or with a bearing packer so that spaces between the balls or rollers are filled. A layer of grease from  $\frac{1}{8}$  to  $\frac{1}{4}$  in. thick should be applied over the hub and axle surfaces. That's all. Do not fill the hubs because the heat and pressure will soon push this excess through the seals and into the brakes. Some operations pack the hub caps. This is unnecessary and may lead to the same type of trouble. Remember, when on the next job, more bearings are over-lubricated than underlubricated, and if you check them periodically as required, don't be afraid of saving your grease.

## Blown Cylinder Head Gaskets

Blown cylinder head gaskets are not common with an engine that is in good shape, yet some mechanics are tempted to replace a defective gasket without checking into the cause of the trouble. When a cylinder head gasket goes, you can be sure there is misalignment or warpage present. Warped heads or blocks can be caused by overheating, improper draw-

(TURN TO PAGE 154, PLEASE)

# TRAILMOBILE



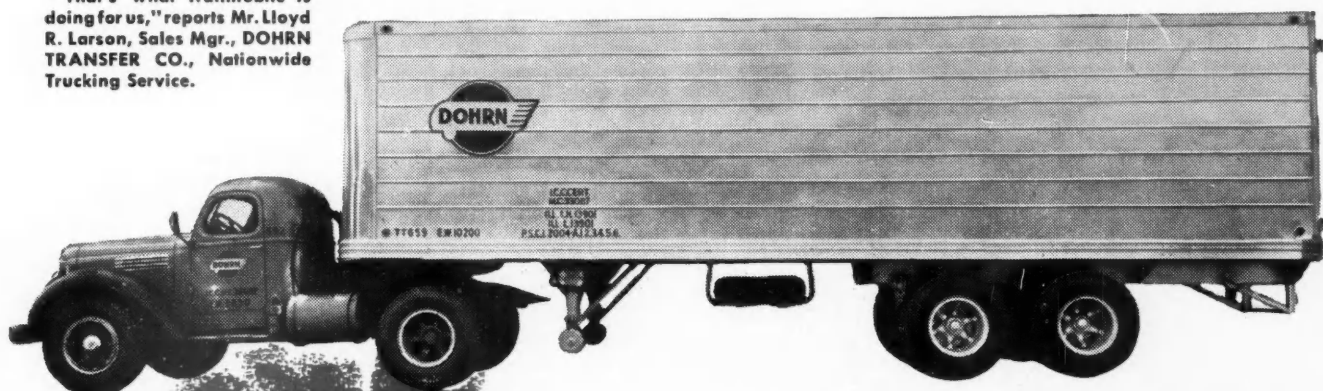
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# The OVERLOAD

E D I T O R I A L C O M M E N T

## Maryland Road Test Requires Some Serious Thinking

**E**VER since publication of CCJ's exclusive story on the Maryland Road Test (July, p. 54) your editors have been besieged with communications by wire, mail and pony express pointing out things that are wrong with the test.

Here are a few examples: The test is being conducted in a glass bowl open for one and all to see and judge. Glamor angles have been built up for news reels and TV. Cooperation by test personnel even included the refilling of one hole with water. The subsoil is terrible. The six wheelers are of improper design and tire sizes are wrong. Vehicles are being driven too close to the edge of the road. Maintenance is no good. And so on.

With few exceptions most of these things are at least partially true. But we question whether they are bad. Most have a logical explanation, as reported in the article on Page 64 of this issue.

Far too early for full evaluation, progress reports nonetheless indicate that we may have to revise our thinking and approach the problem of highway damage in a new light. The truth, even though it hurts, is that the test strips subjected to the heavier axle loads are showing more damage, in terms of pumping and cracks, than are those carrying only the lighter loads.

It's generally conceded that pumping is the first real sign of danger on a concrete strip. After pumping come cracks and, ultimately, slab failure. It is also conceded that three elements—all of which must be present—cause pumping. They are (1) a water-holding sub-grade; (2) actual presence of water, and (3) continuous heavy loads. Pumping can be prevented if any one of these factors is

eliminated. But, as of right now, the sad truth is that a majority of the Nation's highways have been built on a sub grade not designed to carry heavy axle loads. Even though final soil tests are yet to be made, there is no question but that this is true in the case of the LaPlata test strip, despite earlier beliefs to the contrary.

Here's a brighter spot. While the Maryland Test is showing up heavy axle loads in a questionable light, it's also showing up some very interesting things about highway building and maintenance. Where the sub grade is good, so is the slab. Even where the sub grade was bad, the installation of French drains appear to have almost stopped pumping and even further slab movement. This of course is subject to further test and observation.

From where we sit, it looks as though truck interests will be forced to admit a degree (yet to be determined) of increased damage to *existing* highways resulting from heavy axle loads. At the same time, they should campaign vigorously for better sub grades for all *new* roads and better and especially *quicker* maintenance for existing ones.

It's still our bet that present taxes on even the heaviest vehicles will offset added maintenance and construction costs. Don't forget that even though the test strips have received the equivalent of about 10 years of normal wear already, damage is still imperceptible to the average observer. There have been no complete failures yet!

Don't forget also that this is but one of four projected tests. Others will include "black top" surfaces and roads with proved sub-grade characteristics.

*Bart Rawson*

Editor



New facts from Du Pont help you

# Save money on anti-freeze

If you operate light- or medium-duty vehicles equipped with low-opening stats, you can get complete winter protection with standard-priced "ZERONE"

Only the most efficient of all known safe anti-freeze materials is used in making "Zerone."\* Used with low-opening thermostats (160°F. or below), on light or medium duty, "Zerone" provides complete, economical anti-freeze protection at average temperatures and altitudes. Evaporation is no problem with "Zerone"—it needs only an occasional check-up. "Zerone's" special *chemical* rust inhibitor retards corrosion—gives long-time, anti-acid protection—and keeps a clean cooling system clean.



For use with heavy-duty vehicles, high-opening stats, and at high altitudes, you're best off with "ZEREX"

"Zerex"\* anti-rust anti-freeze is high boiling—one filling lasts all winter in a properly operating cooling system. Made especially for use with high-opening thermostats (above 160°F.), and for heavy-duty service, or at high altitudes. Its special *chemical* inhibitor retards rust and corrosion and gives cooling solutions long-time anti-acid protection. "Zerex" won't attack rubber—seep or creep from a tight cooling system—or clog radiators.



And for greater economy—you can pre-mix "ZERONE" or "ZEREX"

Both "Zerone" and "Zerex" mix completely with water in all proportions . . . their special Du Pont *chemical* rust inhibitor will *not* separate from solution while standing. That means you can make up a "pre-mix" of properly proportioned solution and have it constantly on hand for replacing cooling system losses.

\*Reg. U. S. Pat. Off.



REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING  
...THROUGH CHEMISTRY

**I Know It's There  
Because I "FEEL"  
It's There!**



## **MIDLAND'S New AIR HY-POWER The Modern Air Brake Control**

Here's lightning fast brake control. Fine graduation and brake pedal "feel." • Midland Air Hy-Power is an outstanding engineering development providing the greatest improvement in brake equipment in years, more effective brake control, greater safety, lower costs. • Thoroughly engineered field installation kits are available. Be sure to get all the facts about Midland Air Hy-Power. Write for illustrated, descriptive circular.

*The*

# **MIDLAND**

**STEEL PRODUCTS COMPANY**

6660 Mt. Elliott Ave.

Detroit 11, Mich.

Export Department: 38 Pearl Street, New York, N. Y.



**Air and Vacuum  
POWER BRAKES**



**World's Largest Manufacturer of  
AUTOMOBILE and TRUCK FRAMES**

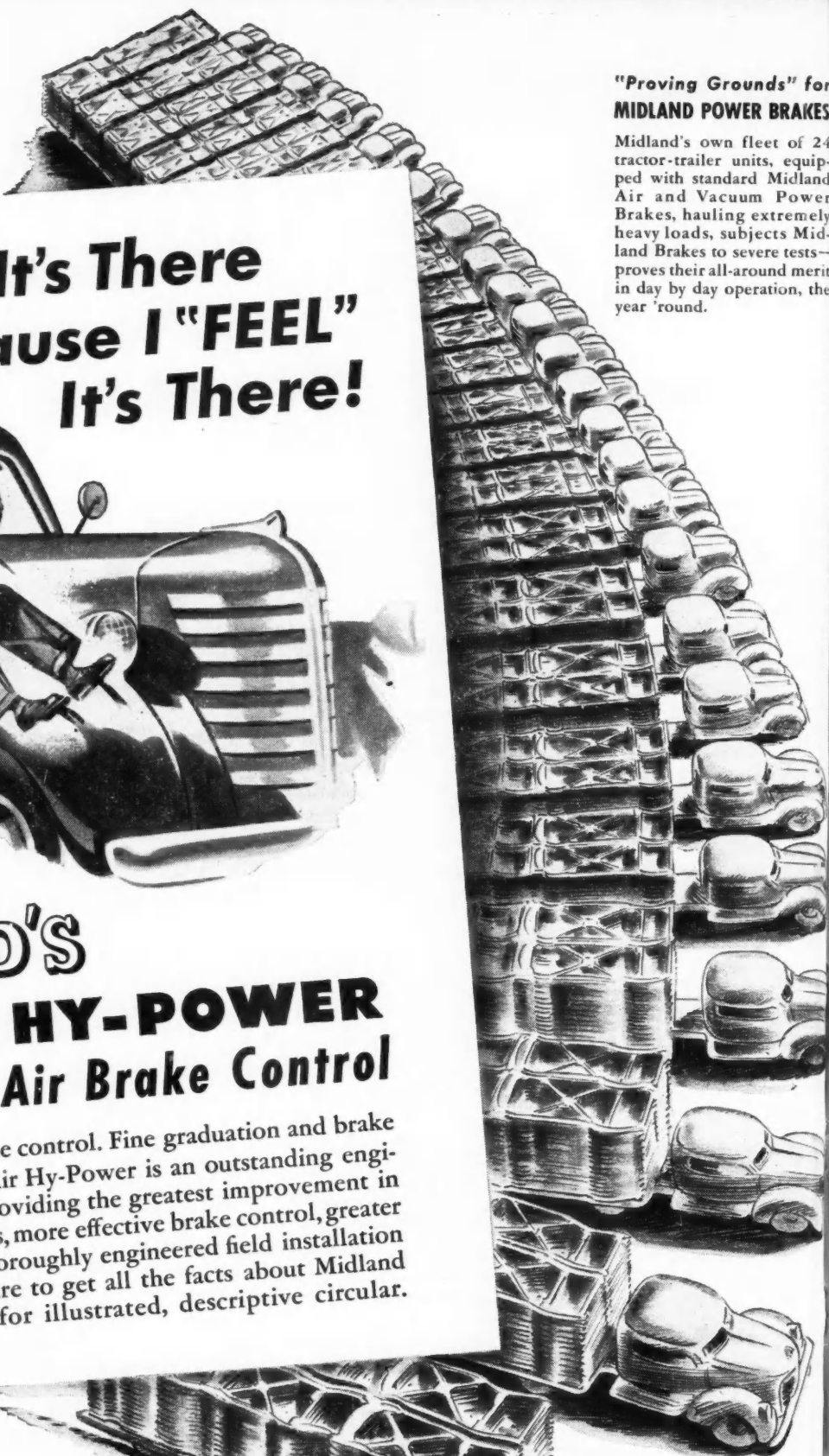


**Air and  
Electro-Pneumatic  
DOOR CONTROLS**



### **"Proving Grounds" for MIDLAND POWER BRAKES**

Midland's own fleet of 24 tractor-trailer units, equipped with standard Midland Air and Vacuum Power Brakes, hauling extremely heavy loads, subjects Midland Brakes to severe tests—proves their all-around merit in day by day operation, the year 'round.



# ccj REPORTS

on News of the Industry

## ATA's Annual Convention

War mobilization activities and their effect on the manpower and supply outlook will highlight discussions at the 17th Annual Convention of the American Trucking Assns., Inc., to be held at New York's Waldorf-Astoria Hotel, Oct. 2 through 6. More than 2500 delegates are expected to be on hand.

Other subjects on the agenda include plans for assisting key communities with their civil defense programs, including transportation for disaster relief and for evacuation; and a serious discussion of propaganda attacks by competitive forms of transportation aimed at the imposition of restrictive legislation.

The National Truck Rodeo finals will be held at the Kingsbridge Armory in the Bronx on Wednesday evening, Oct. 4. This year the national truck and full-trailer competition will be included for the first time in the East. Also a new truck and tandem semi-trailer class has been added.

Henry E. English, president of the association, is slated to become chairman of the Board of Directors, while Leland James, now first vice-president of the

association and president of Consolidated Freightways, Inc., Portland, Ore., is expected to be elected to the presidency.

A separate meeting for the managers of the 52 state associations affiliated with ATA will be held at the Waldorf-Astoria the last three days in September.

## SAE West Coast Meeting

Mobilization also injected a serious note into the SAE West Coast Meeting in Los Angeles this year. Papers and discussions in general centered around designs for lower maintenance and operating costs in the truck field, but President J. C. Zeder saw an immediate need for cooperation between all branches of the industry—fuels and lubricants, diesel engines, transportation and maintenance, truck and bus activity—with branches of the military services that may require expert automotive engineering talents. Emphasizing the importance of the engineer in development and research during a national emergency, Mr. Zeder suggested that the armed forces demands must be met immediately and accurately.

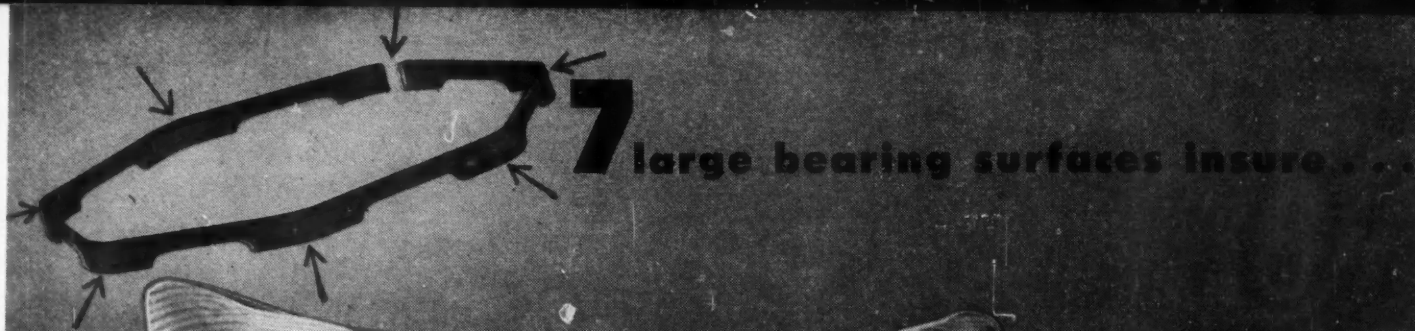
(TURN TO PAGE 146, PLEASE)

## DATES and DOINGS

SEPT. 8-9—Kansas Motor Carrier Assn., Annual Convention, Broadview Hotel, Wichita, Kan.  
SEPT. 8-9—North Carolina Motor Carrier Assn., Annual Convention, Mayview Manor Hotel, Blowing Rock, N. C.  
SEPT. 8-9—West Virginia Motor Truck Assn., Annual Convention, Hotel Waldo, Clarksburg, W. Va.  
SEPT. 9—Maine Truck Owners Assn., Second Annual Truck Rodeo, Bass Park, Bangor, Maine.  
SEPT. 11-15—Fleet Supervisors Training Course, Penn State College, State College, Penna.  
SEPT. 11-15—Fleet Supervisors Training Course, Purdue University, Lafayette, Ind.  
SEPT. 11-12—Wisconsin Motor Carriers Assn., Annual Convention, Lake Lawn Resort, Delevan, Wis.  
SEPT. 11-14—American Assn. Motor Vehicle Administration, Annual Meeting, Multnomah Hotel, Portland, Ore.  
SEPT. 12-14—Society of Automotive Engineers, Hotel Schroeder, Milwaukee, Wis.  
SEPT. 13-14—Tennessee Motor Transport Assn., Annual Convention, Andrew Jackson Hotel, Nashville, Tenn.  
SEPT. 13-15—National Assn. Motor Bus Operators, Annual Meeting, Drake Hotel, Chicago, Ill.  
SEPT. 14-16—Pennsylvania Motor Truck Assn. Fall Meeting, Galen Hall, Wernersville, Penna.  
SEPT. 14-16—Virginia Highway Users Assn., Annual Convention, Hotel Chamberlain, Old Point Comfort, Va.  
SEPT. 15-16—Michigan Trucking Assn., Annual Convention, Park Place Hotel, Traverse City, Mich.  
SEPT. 16—Massachusetts Motor Truck Assn., Inc., Annual Convention, New Ocean House, Swampscott, Mass.  
SEPT. 18-19—American Transit Assn., Emergency Executive Conference & Business Meeting, Stevens Hotel, Chicago, Ill.  
SEPT. 18-22—Fleet Supervisors Training Course, Ohio State University, Columbus, Ohio.  
SEPT. 25-27—National Truck Body Mfrs. and Distributors Assn., Annual Exhibit and Convention, Shoreham Hotel, Washington, D. C.

SEPT. 25-29—Fleet Supervisors Training Course, University of Kansas (Ext.), Wichita, Kan.  
OCT. 2-6—American Trucking Assn., Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.  
OCT. 9-13—Fleet Supervisors Training Course, University of Minnesota, Minneapolis, Minn.  
OCT. 16-18—Society of Automotive Engineers (Transport Meeting), Hotel Statler, New York, N. Y.  
OCT. 16-20—38th National Safety Congress and Exposition, Chicago, Ill. Sessions at Stevens, Congress and Morrison Hotels.  
OCT. 20-21—Indiana Motor Truck Assn., Annual Convention, French Lick Springs Hotel, French Lick, Ind.  
OCT. 24—Motor Transportation Assn. of Connecticut, Annual Convention, Bond Hotel, Hartford, Conn.  
NOV. 1-3—American Society of Body Engineers, 5th Annual Technical Convention, Rackham Memorial Bldg., Detroit 2, Mich.  
NOV. 2-3—Society of Automotive Engineers Diesel Fuel Meeting, Hotel Knickerbocker, Chicago, Ill.  
NOV. 2-3—Arkansas Bus & Truck Assn., Annual Convention, Marion Hotel, Little Rock, Ark.  
NOV. 9-10—Society of Automotive Engineers Fuels & Lubricants Meeting, Mayo Hotel, Tulsa, Okla.  
NOV. 13-17—Fleet Supervisors Training Course, University of Virginia, Charlottesville, Va.  
NOV. 16-18—Montana Motor Transport Assn., Annual Convention, Rainbow Hotel, Great Falls, Mont.  
NOV. 20-24—Fleet Supervisors Training Course, Georgia School of Technology, Atlanta, Ga.  
NOV. 26-DEC. 1—American Society of Mechanical Engineers, Hotel Statler, New York, N. Y.  
DEC. 3-4—Missouri Bus & Truck Assn. Annual Convention, Governor Hotel, Jefferson City, Mo.  
DEC. 4-8—Automotive Service Industries Show, Navy Pier, Chicago.  
DEC. 7-9—Oregon Motor Transportation Assn. Annual Convention, Hotel Multnomah, Portland, Oregon.  
DEC. 8-9—New Mexico Motor Carriers Assn. Annual Convention, Hilton Hotel, Albuquerque, N. M.





**Another important reason why you need never worry about harsh pressures with RAMCO**

Think of the Ramco Inner-Ring as a cushion, a stabilizing agent between the piston and cylinder wall that **RETARDS VIBRATION, RESISTS PISTON SLAP and PREVENTS BARREL FACING OF RINGS.**

Think of the Ramco Inner-Ring as a pillow . . . not a pressure force . . . and you'll understand the engineering reason why the Ramco Inner-Ring is suited for operation in *any cylinder* from re-bored to badly worn.

That's why the Ramco Inner-Ring also is an important contributory factor to the All-Purpose character of the Ramco 10-Up Ring Combination. Along with basic Ramco Spiro-Seal and many other factors, Ramco's patented Inner-Ring makes it possible to get longer lasting Re-Bore and Re-Ring jobs on all Cars, Trucks and Fleets. Consult your Ramco Jobber about full details. Ramsey Corporation, St. Louis, Missouri.

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Year after Year, Better and Better, Yet, **UNCHANGED** in BASIC DESIGN Since Originated by Ramco Many Years Ago...

**RE-POWER WITH RAMCO 10 up**

**ALL-PURPOSE PISTON RINGS**

Unchanged except for the Better through continuous engineering perfection of detail. No obsolescence loss or risk of performance disappointment due to frequent design changes.

# DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

## Truck Production High

It now is quite likely that truck production this year will hang up a new alltime record. Even before the Korean War, truck demand was far outstripping estimates made at the first of the year and, of course, the war has greatly accelerated the pace. By the middle of August, truck production had passed the 825,000 mark and was about 50,000 units ahead of the same time a year ago. Whether or not scarcity of steel, or other interference from the military situation will prevent a new record this year is problematical. However, the demand is expected to hold up so if the trucks can be built a new record will be established. Previous high point was approximately 1,376,155 units in 1948.

## Scare Buying Subsides

There has been some indication that panic buying of trucks spurred by the Korean War has subsided considerably from its peak in July. During that month several producers enjoyed their highest sales mark in history. Most of them, however, are not publicizing that fact. A typical comment by one of the leading producers is that his company does not take any particular pride in hanging up a sales record which is due primarily to scare buying rather than to any firmly founded demand. Passenger car dealers also report that scare buying of automobiles has tapered off and that the situation is again starting to approach the status that existed before the Korean War started.

## To Cut Road Failures

GMC will have an interesting announcement next month on a new type of service aid for its truck owners. Details are still confidential, but it can be said that it is designed to reduce time lost from breakdowns on the road.

## No Production Cut Seen

The most reliable information we can get indicates that military truck production this year will not in any way interfere with output of civilian trucks. The industry has adequate facilities, and word from the military is that trucks are not a major procurement item at this time. It also is the opinion of top officials in the industry that the amount of steel re-

quired by the military for the rest of this year will be only a very small percentage of the total. In fact, Reo has stated that its order for 8900 2½-ton military trucks plus engines for 4000 additional units to be built by Studebaker will in no way curtail its own production of civilian units. The company has a capacity of 25,000 trucks a year, considerably above Reo's military orders and its own projected civilian production combined.

## New IHC Engine

International Harvester within a few months will have a new engine in its line to bridge the gap between its 269.1 cu in. engine used in the L-184 and the 372.1 cu in. displacement power plant used in the L-190. It is understood that the engine will be used in the Model 185 which has a 19,000 lb gwv rating.

## GMC "110" Used In Truck

The large 275 horsepower diesel experimental truck which GMC has under development has been leased to Pacific Intermountain Express, of Denver. The purpose of the deal is to subject the truck to a thorough test under actual operating conditions. Designated as model 954, it is equipped with the 6-110 engine which develops 275 horsepower *without supercharging*. The truck weighs just over 15,000 pounds and has a gwv of 70,000 pounds. Final decision on whether or not GMC will put the truck into production is contingent on results of the tests, which will take several months. See Picked Pix Page.

## Sheet Steel Short

The current shortage of sheet steel has hit the maintenance operation of some fleet operators. One large trucking concern reports that it is unable to get sheet steel necessary to repair its trailers and in some cases is forced to substitute aluminum sheets.

## Ford Wobble Stick Goes

Ford this month will abandon the old familiar center mounted "wobble stick" in favor of the steering column gear shift on its F-1 panels and pickups. There will be no change in the transmission, however. The change is being made for greater convenience for the driver and to provide more room in the cab.

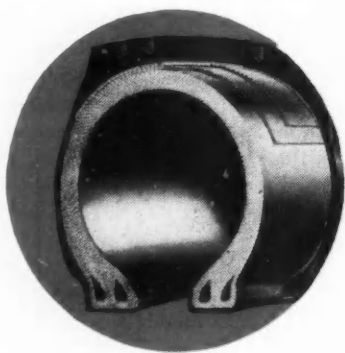
**Figure on More Miles . . . Added Profits**

*with The new*

# **GENERAL <sup>RIB</sup> HIGHWAY**

**FOR ALL  
CITY AND HIGHWAY  
TRANSPORTATION  
OF FREIGHT**

Five free-rolling ribs form an entirely new tread design for extra safety, extra mileage. General's exclusive construction puts more fabric around the tire . . . more cords per inch. Extra carcass strength assures more, safe recaps; better protection against costly road delays due to tire trouble.



## **Shock Absorber Construction**

Designed and engineered to distribute stress evenly. No undue strain at any one point. Special shoulder construction dissipates heat, absorbs shock . . . prevents blistering, buckling, separation.

**SPECIFY GENERAL TIRES ON YOUR NEW EQUIPMENT**

**THE  
GENERAL  
TRUCK TIRE**



# WASHINGTON RUNAROUND

by GENE HARDY Washington Correspondent

## Col. Johnson Reports on Transport

"The highway transportation industry is in better shape than ever before in its history, numerically and otherwise" to handle the increased requirements of current mobilization. This is the view of Col. J. Monroe Johnson, Chairman of the Interstate Commerce Commission and wartime director of the Office of Defense Transportation, as expressed to CCJ in an exclusive interview.

Col. Johnson said that the No. 1 transportation problem today is the critical shortage of freight cars. Pointing out that "everything that can't move by rail, must move by truck or it doesn't move at all," Col. Johnson stated that "without trucks today, we would be flat on our backs." Emphasizing that more emergency and defense traffic is already moving by truck, he predicted that this movement will increase.

The ICC Chairman is advocating No. 1 priority for freight car building with adequate steel assured by the government. Even if this is done immediately, he sees no relief throughout the rest of this year. This would indicate an ever-growing load on highway transportation.

Col. Johnson saw no need for any kind of controls on trucking operations in the immediate future, at least nothing paralleling World War II. His views are doubly important in the light of President Truman's statement that any emergency transportation problems would be lodged within the ICC, rather than a new agency. In anything like complete mobilization, Col. Johnson feels that all transportation must be placed under one agency. In fact, he favors this move as a permanent feature of the governmental structure.

Increased reliance on trucks for defense traffic will also accentuate the perennial problem of highway adequacy, according to Col. Johnson.

## BPR Studies Highway Priorities

The Bureau of Public Roads is examining all highway projects with the object of giving first priority to those which contribute directly to national defense and deferring, curtailing, or slowing down those projects which do not directly contribute to defense or to civilian requirements essential to the changed international situation. The Bureau notes, however, that highway improvements projects on the National System of Interstate Highways and important projects on the Federal-aid primary, urban and secondary systems are recognized as contributing directly to the national defense and, therefore, are worthy of high priority consideration. Also of recognized essentiality are all highway maintenance activities."

This move is in line with President Truman's order

to all government agencies to cut down on non-essential construction. Part of the same picture is the President's desire to limit Federal aid highway funds to the \$500 million annual amount he originally recommended. The President also warned that the funds should be concentrated on the Interstate System and primary roads, rather than spread to cover rural and country roads as proposed by the Senate.

## Military Plans More Vehicles

Capital Shorts—Tentative military plans for vehicle purchases from new funds call for about 14,000 jeeps, 6000  $\frac{3}{4}$ -ton trucks, 14,000  $2\frac{1}{2}$ -ton trucks and 3300 5-ton trucks. . . . First sizable military order for trailers will be for small ( $1\frac{1}{2}$ -ton and under) cargo trailers to be hauled by the new  $2\frac{1}{2}$ -ton "Eager Beaver." Small water tank trailers will also be included. . . . Marshall Plan aid, including funds for both highway and rail transport, looking to the rehabilitation of Korea is already underway. Included in the authorizations are \$500,000 for trucks and \$250,000 for extra truck tires. . . . The ICC Bureau of Motor Carriers reports many failures to comply with ICC requirements by motor carriers transporting inflammable liquids in cargo tanks. The tank truck carriers and manufacturers of cargo tanks have been ordered to remedy the condition.

## Legislative Log

The Senate has approved a resolution authorizing additional funds for the Domestic Land and Water Transportation Subcommittee of the Senate Commerce Committee. The subcommittee has completed its hearings and the staff is now writing a report. The resolution also extends the time for filing the report from Jan. 1 to Feb. 28, 1951.

Already a dozen committees have been established in Congress to look into the various aspects of the mobilization picture. Only one of these, a subcommittee of the House Commerce Committee, is directly concerned with transportation. A similar subcommittee was in operation during World War II.

A proposal by Sen. Johnson, Dem., Colo., that would have barred Federal-aid highway funds to any state which permitted greater than 18,000-lb axle load limits was turned down by voice vote on Aug. 22.

Just as this issue went to press, the Senate passed a bill (H.R. 8417) amending the ICC Act to give the Commission jurisdiction over motor carrier traffic within the States when such traffic originates in or is destined to a territory or possession of the United States.



"HEAP-GOOD TIP"



Your choice of the proper jack can save some real money for you.

Selecting the *right size, type and capacity* avoids expensive, on-the-job inconveniences . . .

And getting *the finest* will eliminate jack-failures far more costly than the jack itself . . .

That's why you actually save big money by banking on Blackhawk — the world's *finest and most complete* line of hydraulics.

To buy right — buy from sight

#### LOOK FOR THIS "TOTEM POLE" DISPLAY

You'll find it at your jobber — to help you pick the jacks that fit your needs.  
A Product of Blackhawk Mfg. Co., Dept. J-1190, Milwaukee 1, Wisconsin.

# BLACKHAWK®

"PORTO-POWER" • HYDRAULIC HAND JACKS • WHEELED SERVICE JACKS • WRENCHES

Lease Truck Operator: "What's the difference between the model you sold me three years ago and the truck of today?"

Commercial Car Dealer: "Oh, there have been many improvements and refinements made in our line since you bought your last units. Today, our trucks boast the Dynajett engine, Atomahedral gears and the Dynawhirl transmission. They're the last word in efficient and economical power units."

Lease Truck Operator: "Well, I guess them things are OK—but I'm gonna wait awhile till they get a Dynashore rear end."

CCJ

Steno Sue: "I saw the sweetest little hat in a store today at lunch."

Steno Lou: "Put it on and let's see what it looks like."

CCJ

The Maintenance Superintendent was awakened at 3 A. M. by a drunk who pounded insistently on the door. He was very grumpy as he opened his bedroom window and shouted to the inebriate below, "Go away, dang it. You're trying to get into the wrong house!"

"Oh, yeah?" called the happy tippler. "An' how do you know yer not lookin' outa the wrong winder?"

CCJ

"Darling," said the glamorous little blonde as she cuddled up to her Freight Handler boy friend "do you think this house is spooky?"

"Why no, dear," he said, "why do you ask that?"

"Because," she replied, "I feel a cold hand creeping over me."

CCJ

The tank fleet operator received the shock of his life when his teen-age son divulged his plans to marry shortly.

"The girl you want to marry," queried the distraught father, "has she good connections?"

"Well, father, she never came apart when I was out with her," replied Junior.



## LAUGH IT OFF

Two moving van drivers were transporting a cargo of household goods into Canada for the first time. Their first stop after crossing the border was in a large town in the West. Being a mite hungry, they parked their unit and made their entrance into a roadside diner to grab a bite of chow. A cute little waitress ambled up to their table and gave them a provocative smile. One of the drivers opened the conversation with the question: "What town is this?"

"Saskatoon, Saskatchewan," replied the pert little waitress.

The other driver turned to his buddy and said: "Now, we're in a helluva mess, Hank, they don't even speak English here!"

THE TRUCK DISPATCHER'S WIFE STOPPED INTO THE NEIGHBORHOOD PET SHOP TO BUY A DRINKING TROUGH FOR HER DOG, AND THE SHOPKEEPER ASKED HER IF SHE WOULD LIKE ONE WITH THE INSCRIPTION, "FOR THE DOG."

TRUCK DISPATCHER'S WIFE: "IT REALLY DOESN'T MATTER. MY HUSBAND NEVER DRINKS WATER AND THE DOG CAN'T READ."

CCJ

SAFETY SADIE SAYS: "MOST BACHELORS HORSE AROUND UNTIL THEY BECOME GROOMS."

CCJ

Ignition Specialist: "Before I was born, my uncle bet that I would take after my mother, and my aunt bet I would take after my father."

Air Brake Specialist: "Who won?"

Ignition Specialist: "Neither. I broke out of the incubator and took after the nurse!"

CCJ

Teacher: "What is a collision?"

Truck Driver's Son: "It's when two things come together."

Teacher: "Give me an example."

Truck Driver's Son: "Twins."

CCJ

SAFETY DIRECTOR: (ON PHONE) "HELLO! PLEASE RESERVE ME A BOX FOR FOUR."

VOICE BACK: "VERY SORRY, SIR, BUT WE'VE GOT NO BOXES FOR FOUR."

SAFETY DIRECTOR: "SAY, ISN'T THIS THE PRINCESS THEATRE?"

VOICE BACK: "NO, THIS IS THE ELITE FUNERAL PARLORS."

(Resume Work)



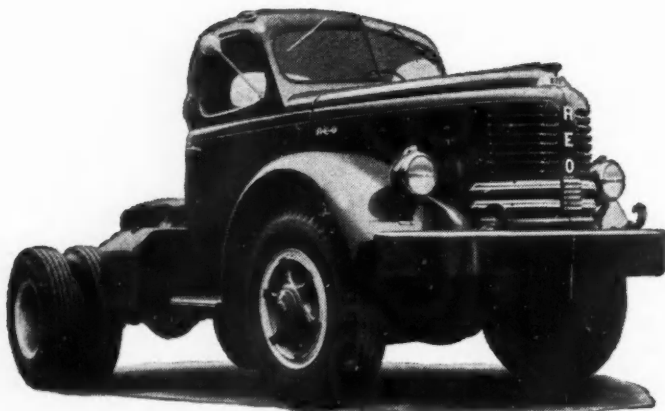


# Reo super engine wins



**Talk about a power plant!** Reo Gold Comet engine weighs only 900 pounds, develops stamina and power of 140 surging horses! Here, U.S. Army's

Reo-built Eager Beaver, with Gold Comet engine, slogs happily through fearsome muck at Fort Knox, Kentucky.



**Rugged Reo E-22 tractor** with astounding Gold Comet Power. Its spectacular 331-cu.-in. engine is 10% lighter than engines hauling comparable loads, delivers over 10% more horsepower. Gold Comets also available in 292- and 255-cu.-in. capacities.

# REO

**TRUCK • BUS • LAWN MOWER  
DIVISIONS**

*General Foods' retail driver salesman Charles Beck proudly points to dash sticker showing his good safety record*

**by Richard Van Fleet**

Personnel and Training Dept.,  
General Foods Sales Div., New York City

“A LOT OF MERCHANDISE has to be sold to offset the cost of automobile accidents involving company-owned cars.” In this quotation we give you the theme and key to the most successful safety campaign we have conducted in recent years.

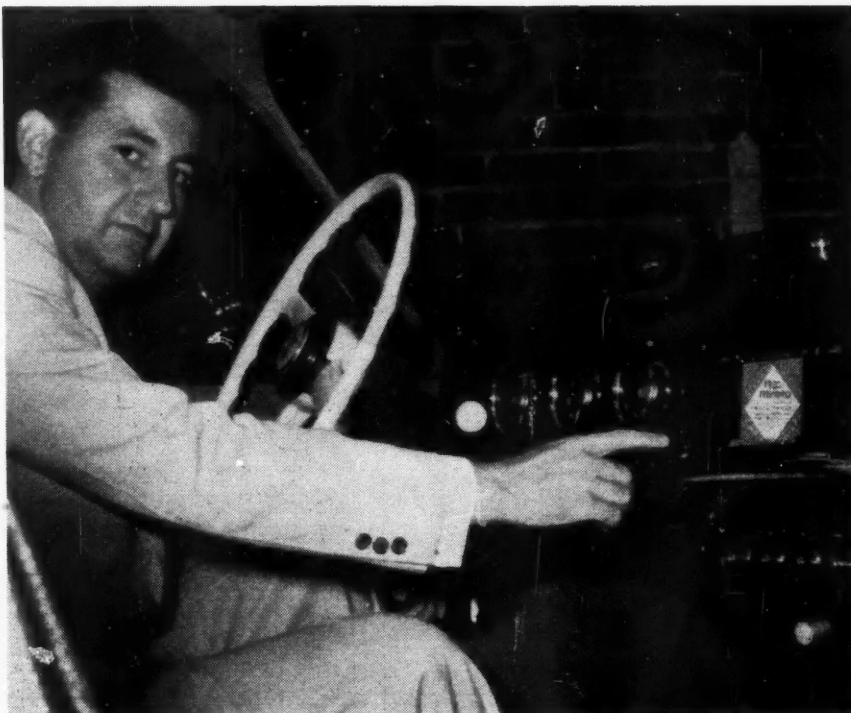
At first reading, this sentence may seem to be a perfectly logical but ordinary statement of fact. It is only upon re-reading and study that this sentence assumes dramatic force—especially to men engaged in earning their living selling highly competitive products. That statement made to a commercial vehicle driver who does not have to earn his living selling merchandise does not have the same meaning as to the driver salesman whose livelihood depends not upon the technical skill of handling a vehicle, but on sales.

#### 1948 Accident Rate Was 3.3%

PRIOR to the launching of the current safe driving campaign last year, the total automobile and property damage cost in the General Foods Sales Division ran into thousands of dollars. We considered that cost excessive, even though the number of accidents per 100,000 miles of travel for the automobile fleet equalled only 3.3.

We were confident that not only could our accident rate and cost be reduced substantially by training our salesmen to be safer drivers but, even more important, that we could reduce the number of painful injuries and lost time resulting from these accidents.

The size of our passenger car fleet was increased substantially in 1949. If the accident rate had continued to climb, as it had each year since 1946, the rate and cost of automobile and



## SALES LANGUAGE Sells Salesmen Safety

**General Foods' driver safety program avoids  
time-worn safety talks, interprets accident  
costs in terms salesmen know best — SALES**

property damage would have been alarming.

#### 1949 Rate Cut 29.8%

WE DECIDED to do something about it—something which we hoped would be more effective than the perfunctory bulletins which periodically warned the men that they should be

safe drivers. The result was that in 1949 the accident rate was reduced by 29.8 per cent, compared with 1948; and there was a 43 per cent reduction in the accident cost for each 100,000 miles driven.

The plan which brought about the reduction in the number of accidents,  
(TURN TO NEXT PAGE, PLEASE)

# Sales Language . . .

Continued from Page 51

## TABLE 1—ACCIDENT COST TRANSLATED IN THE LANGUAGE OF THE SALESMAN

Various examples are being used to drive home to the driver salesman the extra sales we must make to earn enough money to meet the cost of an accident. Here is one:

Accident Cost	Quantity of Merchandise to be Sold	
\$ 25	1000 lb. of Item A	PLUS 100 cases Item B
\$ 50	2000 lb. of Item A	PLUS 200 cases Item B
\$100	3000 lb. of Item A	PLUS 300 cases Item B
\$150	4000 lb. of Item A	PLUS 400 cases Item B
\$200	5000 lb. of Item A	PLUS 500 cases Item B

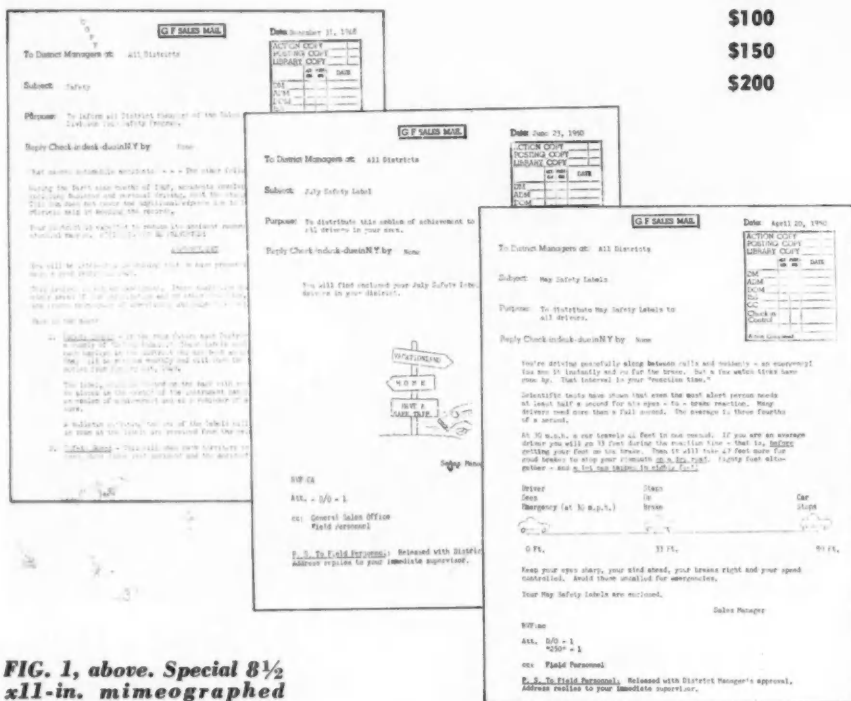


FIG. 1, above. Special 8½x11-in. mimeographed safety bulletins are mailed monthly to district sales offices with safety stickers for each driver salesman

FIG. 2, right. The GF "Safety Board" is a simple 9x12-in. card which is framed and hung on district territory sales office wall. It lists safety record



FIG. 3, right. Dash safety stickers for 1950 differ in design from the stickers used throughout the 1949 campaign to gain maximum attention

and the resulting reduction in personal injuries and costs, was really quite simple. We approached the problem with the premise that accidents are not caused by CARELESSNESS. They are caused by THOUGHTLESSNESS. Our Safety program, therefore, had to be developed around some means of getting our driver salesmen to do a better job of THINKING about safe driving.

Walter Dill Scott, the prominent educator, once said: "Every idea that enters the mind tends to pass into action." We want to put the sub-conscious mind to work as well as the conscious mind.

Campaign Aimed at Individual TOO many campaigns are directed to the group instead of the individual. We directed ours to the individual. The tool which we used was a safety label





FIG. 5, left. General Foods' employee publication helps keep interest in safety. This is the January issue containing Mr. Francis' "Challenge" message

for use on the dashboard of each man's car, as shown in the accompanying illustrations.

The label is renewed each month in a different color and with a new slogan. The significant part of the label, however, is a typewritten line which shows how long the salesman has driven without a preventable accident. Thus, we appeal to the spirit of competition and pride which is inherent in every individual. We give the salesman a score to shoot at. The label stands not only as a daily reminder of the importance of safe driving, but—much more important—it is an emblem of achievement for the individual.

The safety label idea was reinforced with supplementary material. All men were informed that on the wall in the district sales office would be a safety

board, as shown in Fig. 2. This is a 9 x 12-in. cardboard card listing safety records of the individual territories. It enables our district managers to see at a glance the number of cars in each territory, the date since the last accident and the accident rate computed on a monthly basis. The information on this board is brought up to date monthly, and the figures are cumulative throughout the year.

Each month the safety labels are released with a special bulletin which goes to all drivers in the Sales Division. A few of these are shown in Fig. 1.

The purpose of these bulletins is to keep the subject of safety alive in a palatable manner. This means that the bulletins have to be "alive," and not filled with time-worn and stilted safety phrases with which we are all acquainted.

Each month an article on safety appears in Salesviews, the GF Sales Division news publication, a copy of which is shown in Fig. 5. An effort is made to pace the articles so that the salesmen do not become tired of hearing of that old subject—Automobile Safety. For example, one month a cartoon is run; the next month an article by the General Manager of the Sales Division is featured; the third month tips on safe driving appear; and so on.

Whenever an individual has a preventable automobile accident costing \$100 or more, the safety counselor writes a special memo to the salesman's supervisor, suggesting that the driver's automobile accident record be discussed with him, and that the supervisor point out how accidents can be avoided in the future.

We play up our membership in the National Safety Council, and remind the men of the honor in receiving "Safe Driver" and "Key Chain" awards from the council.

#### Costs Translated Into Sales

TO DRIVE home the high cost of accidents, we translate accident expense into cases of merchandise that would have to be sold to earn enough profit to wipe out the loss caused by the accident. One method of presenting this fact is shown in Table 1.

This is talking to the salesmen in their own language. When they see how many cases of Maxwell House Coffee, Certo or Post Toasties have to be sold

(TURN TO PAGE 158, PLEASE)



FIG. 4, below. Safety stickers used during 1949. A terse safety message appears at the bottom of each sticker

# Bus Maintenance Averages

Average Bus Fleet Vehicle Age is 6.2 Years

Data obtained from ATA's maintenance productivity study reveals many other interesting facts about bus maintenance practices

▼ THERE IS NOTHING more disturbing to an equipment manager than to have top management say, "I hear that the Soandso property upstate reports a lower maintenance per mile cost than what we do. How is that possible when they have a dozen more older buses than we?"

In self protection, the equipment manager has to point out that there may be many variables between the two properties which would directly affect maintenance cost. But no matter how successfully the equipment manager is able to point out the irreconcilable differences, management usually winds up such a discussion urging the equipment manager to cut costs.

There isn't an equipment manager in the passenger transportation business today who wouldn't give anything, short of his right arm, to have a standard of measuring maintenance efficiency to defend his policy and program—or to improve it, where possible.

Over the years many attempts have been made to develop some measure of productivity or efficiency of bus maintenance activities so that comparisons would be available among transit companies. Early this year, the Small Operations Steering Committee of the American Transit Association, after many months of hard work and the cooperation of 73 properties, compiled some data by means of which equipment superintendents

Fleet Number	Size of Fleet	Average Age of Fleet (Vehicle Years)	Number of Bus Makes	Miles Operated in Typical Month	Maintenance Personnel	
					Total	Number of Buses per Shop Employee
1	12	4.8	2	36,259	5	2.4
2	12	6.2	1	43,892	6	2.0
3	14	9.1	1	46,000	6	2.3
4	15	4.0	1	27,000	3	5.0
5	15	8.4	2	35,000	7	2.1
6	16	10.9	1	32,100	4	4.0
7	17	6.4 <sup>Δ</sup>	3	52,000	8	2.1
8	17	8.0 <sup>Δ</sup>	2	50,000	6	2.8
9	17	5.8	2	53,000	9	1.9
10	17	3.8	2	52,455	10	1.7
11	19	6.4	3	64,246	6	3.2
12	19	5.7	4	53,215	4	4.8
13	24	7.6	7	31,314	3	8.0
14	24	4.8	2	75,229	14	1.7
15	26	5.1 <sup>Δ</sup>	4	75,000	8	3.3
16	28	5.2	2	108,194	12	2.3
17	28	7.5 <sup>Δ</sup>	5	52,000	7	4.0
18	28	5.2	2	72,615	10	2.8
19	29	7.7	3	78,156	11	2.6
20	30	6.4	1	128,747	14	2.1
21	33	3.8	3	72,450	19	1.7
22	33	3.9	2	101,350	13	2.6
23	33	6.8	3	113,021	12	2.8
24	34	5.5	2	84,466	10	3.4
25	36	7.6	1	118,483	17	2.1
26	36	4.8	2	121,673	17	2.1
27	36	3.9	2	162,818	19	1.9
28	37	5.0	3	103,174	16	2.3
29	37	3.3	2	138,079	16	2.3
30	37	6.0	3	202,897	42	0.9
31	38	7.1	1	99,720	13	2.9
32	38	5.7	3	112,000	24	1.6
33	38	5.3	4	120,832	21	1.9
34	39	5.0 <sup>Δ</sup>	5	141,722	18	2.3
35	41	5.6	2	120,891	26	1.7
36	45	5.7	1	125,278	14	3.2
37	47	7.2	5	138,074	23	2.0
38	46	6.4	1	130,000	10	4.6
39	46	8.7	1	146,935	31	1.5
40	46	7.3	2	122,225	22	2.2
41	55	4.2	3	175,000	30	1.8
42	60	7.2 <sup>Δ</sup>	2	163,626	33	1.8
43	60	6.5	3	215,630	42	1.4
44	62	5.2	1	192,018	30	2.1
45	63	8.3	2	170,441	29	2.2
46	63	5.1	4	248,000	49	1.3
47	65	5.5	2	207,000	42	1.5
48	66	5.7	2	168,324	20	3.3
49	66	6.3	2	176,401	30	2.1
50	68	6.7	2	187,201	33	2.1
51	69	7.0	3	228,878	41	1.7
52	76	7.3	2	223,820	36	2.1
53	76	3.4	2	253,045	44	1.7
54	78	7.1 <sup>Δ</sup>	7	273,978	36	2.2
55	83	4.0	3	250,899	53	1.6
56	86	5.8	5	268,629	43	2.0
57	87	6.2 <sup>Δ</sup>	3	452,288	47	1.9
58	90	4.0	2	274,860	30	3.0
59	92 <sup>†</sup>	7.8	2	251,803	38	2.4
60	92	7.0 <sup>Δ</sup>	4	366,766	43	2.1
61	93	7.0 <sup>Δ</sup>	3	343,909	48	1.9
62	100	5.9	4	360,257	46	2.2
63	100	6.5	1	387,603	55	1.8
64	109 <sup>†</sup>	7.4	3	288,790	45	2.4
65	111	7.4	4	355,193	66	1.2
66	117	6.6 <sup>Δ</sup>	3	460,071	82	1.4
67	127	5.7	2	356,100	67	1.9
68	135 <sup>†</sup>	5.7	5	446,844	80	1.7
69	137	8.5	3	426,584	65	2.1
70	151	7.0 <sup>Δ</sup>	3	395,983	73	2.1
71	202	7.6	2	616,872	127	1.6
72	206	5.9	6	600,000	123	1.7
73	242	5.9 <sup>§</sup>	6	825,444	138	1.8
AVERAGE.....	6.13	6.2	2.7	195,487	31.5	2.3

† Some repairs on check list not performed.

Δ Estimated.

§ Based on information for 8 buses only.

† Includes trolley coaches.

§ Information not furnished.

could measure the efficiency of their maintenance programs. Their findings have been compiled by the editorial staff of CCJ into the accompanying

two tables.

It will be seen that the tables do not contain any cost data. This may disappoint many equipment superin-

# 30.5 Man-Hours per 1000 Miles

Mechanics Service Average of 3½ Buses per Man

Fleet Number	Mechanics		Facilities		Man-Hours	
	Per Cent of Total Shop Personnel	Buses per Mechanic	Unit Overhauls in Own Shop Per Cent	Unit Overhauls Farmed Out Per Cent	Total in Typical Month	Ratio per 1000 Miles
1	50.0*	4.8	66.7*	44.4*	1,079	29.8
2	50.0	4.0	82.4*	29.4	1,120	25.6
3	66.7	3.5	70.6	29.4	1,344	29.2
4	66.7	7.5	66.7	33.3	487	18.0
5	42.9*	5.0	83.3	16.7	1,480	42.3
6	50.0	8.0	81.3*	31.3	1,022	31.8
7	50.0	4.3	76.5*	29.4	1,663	32.0
8	50.0	5.7	77.8	22.2	1,152	23.0
9	66.7	2.8	77.8	22.2	1,944	36.7
10	60.0	2.8	77.8	22.2	1,746	33.3
11	50.0	6.3	72.2	27.8	888	13.8
12	75.0	6.3	66.7	33.3	774	14.5
13	33.3	24.0	16.7	83.3	628	20.3
14	57.1†	3.0	76.5	23.5	2,780	37.0
15	62.5	5.2	37.5	62.5	1,312	17.5
16	75.0	3.1	83.3	16.7	2,496	23.1
17	57.1	7.0	70.6	29.4	1,488	29.0
18	40.0	7.0	61.1*	44.4	2,236	30.8
19	45.5	5.8	77.8	22.2	2,350	30.1
20	84.3*	3.2	83.3	16.7	3,024	23.9
21	52.6	3.7	83.3	16.7	3,796	52.4
22	61.5	4.1	41.2*	64.7	3,062	30.3
23	66.7	4.7	33.3	66.7	2,139	18.9
24	60.0	5.7	50.0	50.0	2,183	25.8
25	52.9	4.0	70.6	29.4	3,612	30.5
26	41.1	5.1	66.7	33.3	3,072	25.3
27	47.4	4.0	68.8	31.3	3,952	24.3
28	56.3†	4.1	76.5	23.5	3,058	29.6
29	43.8††	5.3	76.5	23.5	3,402	25.0
30	40.5	2.2	88.9	11.1	8,480	41.8
31	38.5	7.6	83.3	16.7	2,837	28.5
32	54.2	2.9	94.1	5.9	5,079	45.3
33	66.7	2.8	83.3	16.7	4,072	33.7
34	55.6	4.1	70.6	29.4	3,031	21.4
35	38.5	4.5	88.9	11.1	4,265	35.3
36	42.9	7.5	76.5*	100.0	3,019	24.1
37	76.3	2.6	88.9	11.1	4,120	29.8
38	60.0	7.7	25.0*	81.3	2,380	18.3
39	29.0	5.1	88.9	11.1	5,213	35.5
40	59.1	3.7	83.3*	27.8	3,976	32.5
41	63.3	2.9	77.8	22.2	3,990	22.8
42	51.5	3.5	77.8*	27.8	6,375	39.0
43	59.5	2.4	94.4	5.6	7,889	36.5
44	30.0	6.9	88.9*	22.2	6,139	32.0
45	41.4	5.3	55.6*	77.8	5,726	33.6
46	57.1	2.1	88.9	11.1	8,400	33.9
47	59.5	2.6	94.4	5.6	9,900	47.8
48	65.0	5.1	61.1	38.9	3,936	23.4
49	56.7	3.9	88.9*	16.7	6,019	34.1
50	48.5	4.3	72.2	27.8	6,085	32.5
51	41.5	4.1	94.4	5.6	8,687	37.9
52	41.7	5.1	61.1	38.9	6,050	27.0
53	58.8	3.0	77.8	22.2	9,672	38.2
54	55.6	3.9	94.4*	16.7	7,488	27.3
55	58.5	2.7	77.8	22.2	9,052	36.1
56	51.2	3.9	88.2	11.8	8,944	31.0
57	59.6	3.1	88.2	11.8	8,969	19.8
58	30.0	10.0	94.4	5.6	6,987	25.4
59	73.7	3.3	77.8	22.2	7,846	31.2
60	65.1	3.3	76.5	23.5	9,966	27.2
61	60.4	3.2	72.2	27.8	12,111	35.2
62	56.5	3.8	94.4	5.6	9,634	26.7
63	54.5	3.3	83.3	16.7	12,348	31.8
64	62.2	3.9	100.0*	5.6	8,107	28.1
65	65.2	2.9	83.3	16.7	12,852	36.2
66	63.4*	2.3	88.2	11.8	13,995	30.4
67	52.2	3.6	88.9	11.1	13,932	38.8
68	75.0	2.3	94.1	5.9	15,605	34.9
69	60.0*	3.5	55.6*	50.0	13,698	32.1
70	17.8^	11.6	82.4	17.6	12,337	31.2
71	58.3	2.7	100.0	0.0	27,212	44.0
72	67.5	2.5	88.9	11.1	20,564	34.3
73	65.2	2.7	94.4	5.6	31,303	37.9
AVERAGE	56.0	3.48	77.8 (Median)	22.2 (Median)	6,267	30.5

\* Some work handled in own shop or farmed out, depending on conditions.

• Includes working leaders, foremen or superintendents.

† Includes two mechanic specialists.

†† Includes four 4th class mechanics, one inspector.

‡ Includes three mechanic specialists.

^ Includes two special repairmen.

In the introduction to its report, the Small Operations Steering Committee made the following important observations: "Most maintenance men would probably agree that a ratio involving a dollars-and-cents measure of the cost of bus maintenance would be the ideal gage of relative maintenance efficiency among different transit properties—for example, cents per total bus miles operated or annual dollars per vehicle owned or per active vehicle, or some other similar ratio related to costs.

"As a practical matter, however, it is generally recognized that cost ratios will not produce comparable results among different transit properties. This is due to a variety of reasons, not the least of which are wide variations in wage rates and working conditions, and to the fact that data on a cost accounting basis are not generally nor uniformly available among transit companies.

"The Small Operations Steering Committee, being keenly aware of these facts, and having given some consideration to use of the ratio of maintenance man-hour per thousand miles operated as a measure of maintenance productivity, came to the conclusion that for small operations, at least, that ratio would be a practical one for the purpose, provided it was always supplemented with details revealing (1) a brief description of the complexion of each company's fleet of vehicles, including the number, make, model and manufacturer's year of each bus; (2) an indication of the types of maintenance work that is farmed out; and (3) a showing of the number and classes of workers engaged in servicing and maintaining each company's fleet together with an indication of the length of work week for each work classification."

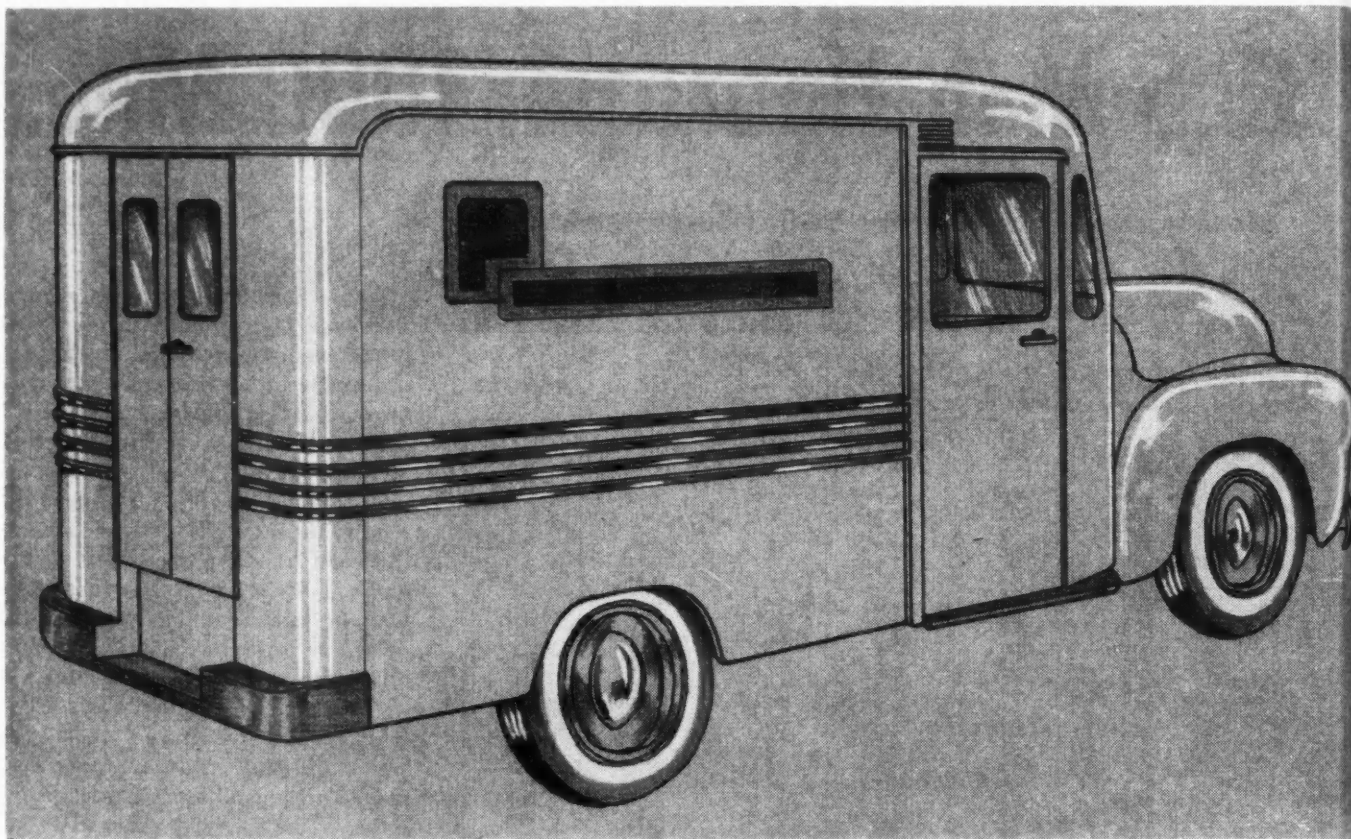
The Small Operations Steering Committee has achieved its objective with outstanding success. It released many pages of detailed data showing the specific operational and maintenance differences of the 73 properties.

(TURN TO PAGE 157, PLEASE)

tendents. However, as further explanation will show, there is a good reason for this omission. It will tend to substantiate the equipment

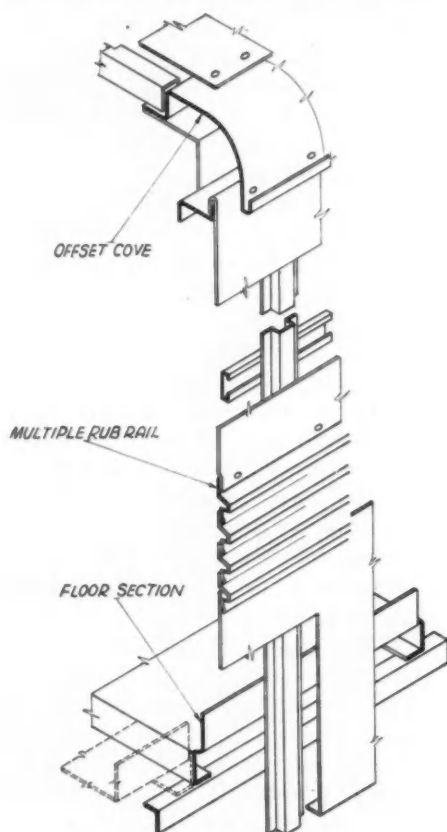
manager's argument that it is impossible to measure bus maintenance between properties by any dollars-and-cents yardstick.





## CUSTOM-STYLED BODY for the RETAIL

Utilizing standard pre-fab parts, custom design



### CUSTOM DESIGNS FROM STANDARD PARTS

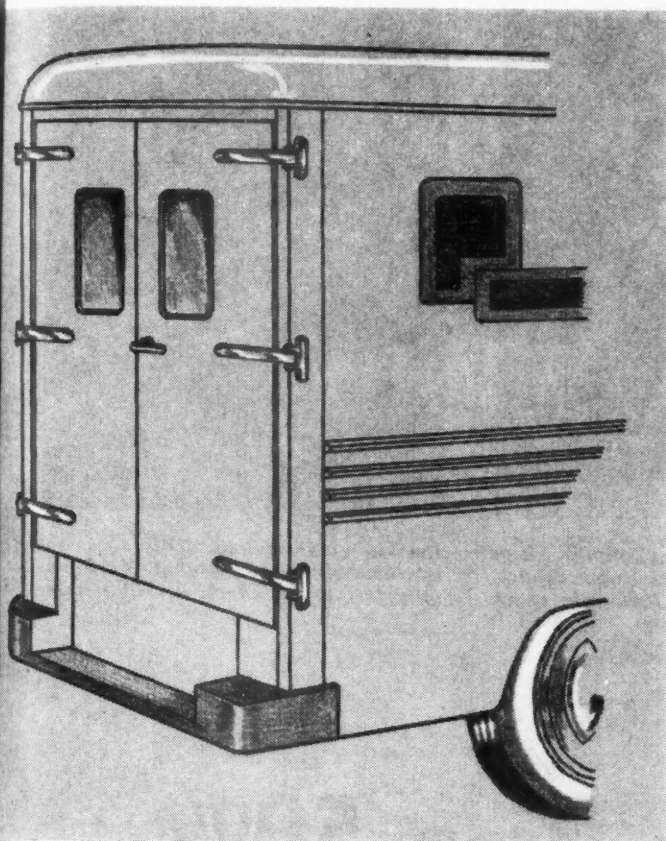
Nearly every private fleet operator will concede the advertising value of custom body design in his particular vocation. Twice in the past 12 years CCJ has run a series of such body designs, and both times interest has been high among both the fleetman and the body builder.

But the one great drawback of custom body design and construction to date has been the added cost. Now, in this new body series which begins on these pages, CCJ provides the answer to that one too. How? Simply by arranging the designs to utilize strictly standard pre-fabricated parts available from a number of body part suppliers. Cost becomes only slightly more than for conventional design.

While all designs are copyrighted by both Commercial Car Journal and the author, details concerning the procurement of parts are available without charge and full consulting service by the author is obtainable at a nominal fee. Simply address your inquiries to the Editor.

The following tentative schedule, subject to change—particularly upon requests for special designs from fleet operators—has been established:

This issue:	Bakery Body
December:	Bottler's Body
February:	Universal Van
May:	Dairy Body
July:	Department Store
September:	Insulated Van



# BAKERY

features functional multiple rub rail in construction

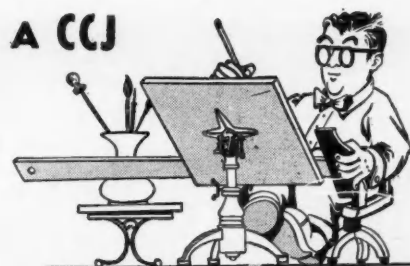
**THE FIRST DESIGN** is that of a retail delivery unit of the type in common use by bakeries in large quantities. It is a multi-stop unit with sufficient eye appeal to compel attention and do a good selling job. The few extra dollars necessary to create this design with standard prefabricated sections (see note at left) are more than repaid.

## Appearance Features

**THE** overall lines have purposely been kept clean and neat, in line with the product being delivered and care has been taken to blend them

into the chassis lines. As will be noted, two rear roof treatments have been suggested; the sweeping one, of course, being the more expensive of the two.

A very striking effect has been created by the use of a Multiple Rub Rail which has been located at the most efficient height. For those who want something ultra-modern this rub rail set up may be chrome plated as shown. Standard parts have created a rub rail giving clean appearance, structural strength to the body, maximum protection, excellent water drainage over the panel joints



**BODY of the MONTH**

Designed and Copyrighted by  
**E. M. Westberg**

and permit the use of a full 48-in. upper panel for a modern lettering layout.

## Operating Features

**THE** body gives the operator a choice of rear end arrangements which require no basic structural change or deviation in production procedure. The choice is between the narrow double doors which, of course, do not extend beyond the outer edges of the body when open, or the full opening rear end with swing-around doors. The latter permits the use of pallet loading operations. All doors shown are available as standard parts as are the curved corner panels and corner posts.

The full body width is usable for the full body length as the sliding side doors are housed in the wall of the body. Here again this feature is accomplished solely by the use of standard parts.

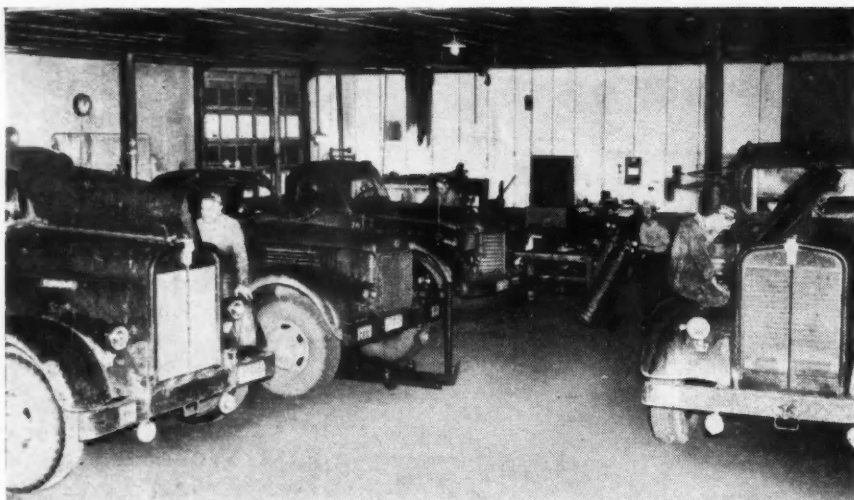
The combination rear bumper, bumperettes and rear step shown is built up by the body builder. For the front entrance step tread a grilled open section is suggested as a safety precaution against snow and ice accumulation.

## Design Features

**THE** materials used in this design were selected not only for appearance but with full consideration of material and production costs. An absolute minimum number of different parts has been employed.

Production costs have been reduced by the use and arrangement of sections, as will be noted on the isometric structural section (page 56)

(TURN TO PAGE 114, PLEASE)



*Corner of main shop at Billings, where NFL concentrates its maintenance. Tractors are in for 3600-mile check*



*Due to cold climate, NFL does not use dust shields on brakes. This permits fast lining check at 3600 miles*

# Road Failures Drop 50% When Terminal Shops Shut

**Reliance on terminal shops to catch needed maintenance led to road failures.**

**One shop, geared for top quality maintenance, has cut road failures and costs**

THE BULK of our operation is from Missoula, Mont., to Minneapolis. Trucks getting in here (Billings) show a round trip reading of approximately 1800 miles on the Billings-Minneapolis run. It is 890 miles one way. Not having a shop in Minneapolis, or shops at intermediate terminals, road failure cost is an important operation factor.

Our whole maintenance program, geared to cut down road failures, is built around our Billings shop. This program has resulted in cutting road failures 50 per cent. Eliminating the Minneapolis shop, and one man intermediate terminal shops, also has greatly reduced our maintenance cost.

When we had these terminal shops, there always was a tendency to depend on them to catch troubles or make adjustments we were obliged to omit when pressed for time. There were times when, perhaps because lack of parts or necessary tools, the adjustments or replacements could not be made as thoroughly as in this shop. This would result in road delays.

Now that we have no terminal shops to lean on, each vehicle that leaves here is in good condition. It has to be. As a result, we have worked out a PM program that meets this need. It insures, among other things, that no parts are overlooked.

## One Form for Two Inspections

WE HAVE one form which we use for the 1800-mile (one round trip) check and the 3600-mile (two round trips) check. For the 1800-mile check, we first take care of the driver's "cry" sheet, then go through the 15 listings on the sheet; but not as thoroughly as for the 3600-mile check.

For the 3600-mile check, we find that it requires, on the average, 4 hours for one mechanic. For the same check on the trailer, 1 1/4 hours are required.

At 30,000 miles, we drain differential (or twin differentials) and refill. Also, main and auxilliary trans-



**NORTHWEST FREIGHT LINES INC**  
**Checkup**

TRAILER NO. \_\_\_\_\_ Title \_\_\_\_\_  
Mileage \_\_\_\_\_ Mechanic \_\_\_\_\_  
Check \_\_\_\_\_ Remarks \_\_\_\_\_

Check	Oil and Inspect All B...
	Oil All Door Hinges and...
	Test and Adjust Brakes
	Check Good Hand Pumps on
	Tighten All Air Line Connections
	Check Safety for Emergency Set ups
	Check Discharge for Air Leak
	Test All Lights and Jumper Cord
	Check Axle Alignment
	Tighten Shackles
	Tighten U Bolts
	Tighten Spring Hangers to Frame
	Report on Operation of Landing Ge
	Report on Body Damage Outside
	Check Wheel Bearing Adjustment

*These are the forms Northwest Freight Lines uses for the 3600-mile PM check. Sheet at left is used for trailers; sheet below for trucks. Similar forms are used for 1800-mile PM inspection*

**NORTHWEST FREIGHT LINES INC**  
**3600-Mile Checkup**

TRUCK NO. \_\_\_\_\_ DATE \_\_\_\_\_  
Mileage \_\_\_\_\_ Time Required \_\_\_\_\_ Mechanic \_\_\_\_\_  
Check \_\_\_\_\_ Item \_\_\_\_\_ Remarks \_\_\_\_\_

	BRACKS—Adj. Travel, Drain Air Tanks
	STEERING—Check Tie Rods, Ends, Rock Lock, Mounting Bolts
	WHEELS—Bearings, Adj., Grease Locks
	LIGHTS—Check All Lights, Fill Spare Bulb Kit
	WIRING—Batt. Terminal, Fuses, Light Connections
	FUEL SYSTEM—Clean & Drain Injectors, Check Lines & Filter
	FIRE EXTINGUISHERS—Check & Re-ill
	FIFTH WHEEL—Check Slack, Check Mounting Bolts
	FUSERS, FLARES & FLARES—Check and Replace
	MOTOR—Check Idle for 500 R.P.M.
	SET VALVES & INJECTORS
	FUEL PUMP SCREENS—Clean and Check Screen, Check Throttle Opening
	AIR CLEANERS—Motor and Compressor
	CHECK FOR OIL LEAKS
	CHECK COMPRESSION—Check for Weak Cyl. Check for Blow By
	DRIVE LINES—Check
	SPRINGS—U-Bolts
	MOUNTINGS—Motor, Bore, Lugs, Rods, Cols
	CHECK ALL BELTS

*When these sleek rigs hit the road, they don't worry about road failures*



On the frame overhaul (70,000-mile) we check the air compressor. If it is showing excessive amounts of oil in the air supply tank, we tear down and overhaul. On approximately one-half of the frame overhauls we find we must overhaul compressors.

Taking average costs on the last 10 units which have been given the 70,000-mile frame overhaul, we find the following:

Labor	\$101.50
Parts	258.16

Total cost ..... \$359.66

On the 140,000-mile check, where we are forced to replace the transmissions and differentials, we use our shop rebuilt units in three out of four overhauls. When rear ends have to be replaced, we figure that it requires an additional labor charge of 16½ hours.

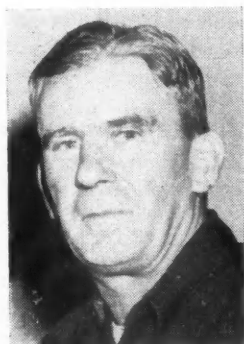
#### Complete Overhaul at 210,000

THE third frame overhaul, or our 210,000-mile job, is a complete overhaul. We install a reconditioned motor, which we keep in reserve, set-up with generator, air compressor and all accessories.

In our fleet we have 30 diesel road tractors, 3 reserve diesel tractors, 36 trailers of the tandem axle class, and 31 pickups and miscellaneous units.

On the diesel units, we average 6.1 miles to the gallon of fuel, and 80 miles to one quart of oil (includes refill, plus amount added).

Our shop personnel consists of one superintendent, one working foreman, five mechanics, two greasers, and one tire man.



#### By Floyd Chenoweth

Superintendent of Maintenance  
Northwest Freight Lines, Inc., Billings, Mont.

On this service we do not re-ring. Half of our trucks run on oversized sleeves and pistons (.020 over) and half on standard.

Instead of putting new rings into this liner, which has run 70,000 miles, we put in a new liner for the standard, and a re-bored liner for the units with oversized, sleeves and pistons.

We do the re-boring in our own shop, and figure that it costs us around \$3 per liner to re-bore. It is our experience that one set of pistons will run through two liners, or 140,000 miles for one set of pistons. We use aluminum pistons with key-stone type rings.

On the 70,000-mile overhaul (we call it the "frame overhaul," because the engine is not removed), bearings are checked and replaced if necessary. We have some sets of bearings which run through for 210,000 miles but, in most cases, we change at 70,000 miles or at 140,000. Generators and regulators also are pulled, checked and rebuilt, if necessary.

missions are drained and filled. All wheels are pulled, linings checked, wheel bearings washed, checked; and replaced, if needed.

The 30,000-mile check comes at the first 3600-mile checkup after the unit registers 30,000 miles. The next major service comes at 70,000 miles, or at the date of the first regular 3600-mile checkup after the unit has registered 70,000 miles.

#### Overhaul at 70,000 Miles

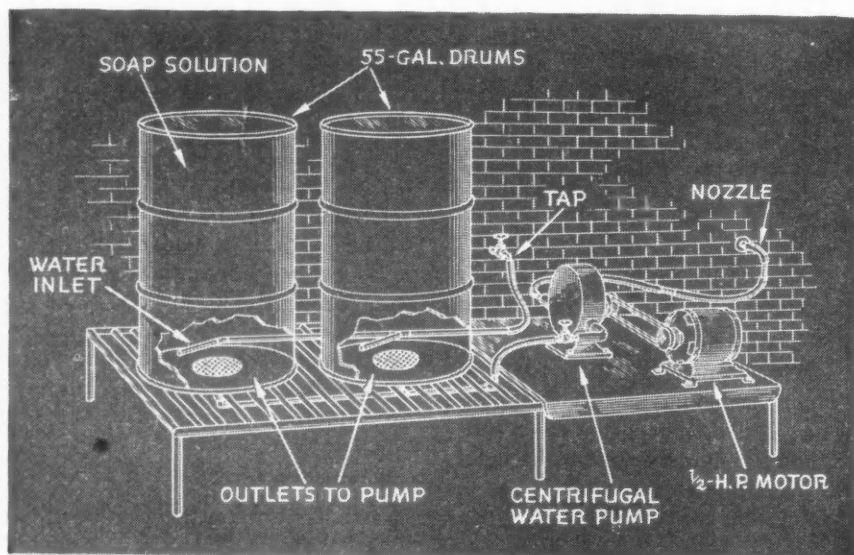
FOR this 70,000-mile service we pull the head and pan of the engine and recondition the head. Fuel pumps are overhauled, also injectors.

# Shop hints from

**\$25** FOR THE BEST HINT PUBLISHED  
EACH MONTH . . .

**\$5** FOR ALL HINTS  
PUBLISHED EACH MONTH

## **\$25 Hint of the Month** ★



### **Home Made Vehicle Washer**

by William Short, Southern Pennsylvania Bus Co., Chester, Pa.

We have made up our own vehicle washer and find it does the job with a minimum of swabbing down. This high pressure soap or detergent spray can be built with discarded parts in a short time.

The washer consists of two 55-gal drums, two 18-in. stands, a centrifugal water pump, 1/2-hp

motor, pipe and connections. The water pump was taken from a Hall-Scott engine, although any large unit will do. A V-belt connects the motor to the pump, while a switch is located nearby and handy to the operator.

The water line from the tap is run to both barrels, with pipe nozzles arranged so that the solu-

tion in the barrels is agitated by the city water pressure. Drains from each barrel are connected to a common pipe leading to the inlet side of the water pump. The outlet side is connected to a hose which leads to the cleaner nozzle on the other side of the wall.

One stand is made from 1/2-in. pipe welded to a pipe frame and supported on pipe legs. Along side this we placed a sheet metal stand supported at the same level with gas pipe. This holds the motor and pump.

### **1. Tractor Pusher**

by Lloyd Hurst  
Shirk Motor Express  
Lancaster, Pa.

Here is a handy device for pushing a dead tractor around the yard or around the shop. When you want to move one with the engine out or disabled, make up a pushing bar from a 10-ft length of 4-in. pipe. Weld king pins to each end and connect the two fifth wheels together as shown.

### **2. Fuel Pump Tip**

by Harry Weigle  
Weigle Service  
Philadelphia, Pa.

Hot weather spells trouble for some Ford trucks, when fuel pumps fail or when vapor lock in the fuel lines causes road delays. Here is how we overcame this trouble and saved many a tow job.

Install an electric fuel pump into the line directly behind the regular pump as shown in the photograph.

# FLEET SHOPS —

This unit is wired so that it can be operated at the dash whenever the regular pump goes out or even when vapor lock causes the engine to stall. The cost of one tow job or a service call will pay for this installation.

## 3. Transmission Fixture

by Paul Shepherd  
Columbia Motor Mileage Corp.  
Lawrence, Mass.

Here is my solution to the problem of installing a heavy transmission in a truck chassis. This device will hold the unit and permit easy alignment without the use of jacks.

The crosspiece is a  $\frac{1}{2}$  x 2-in. angle iron cut to a length to fit across the frame at the transmission. Another 20-in. angle iron is bolted to this at the center as shown. Two  $\frac{1}{2}$ -in. pipe sections 6 in. long are welded to the flat sides of the angle iron at points just above the cover pan ring.

Two  $\frac{3}{8}$ -in. rods 9 in. long are threaded and slipped through the pipe sections. Two pieces of 1-in. strap iron 5 in. long are drilled to fit the cover pan studs and are bent to span one stud on the cover. The center is drilled to take the extension bolts as shown.

To use, lift the transmission and start the extension bolts through the strap iron loops. Then guide the extension bolts through the pipes and start the nuts. Thus the transmission can be held in place and adjusted with an extension speed wrench.

## 4. Roof Guard

by T. J. Cute  
Fidelity Storage Co.  
Philadelphia, Pa.

Our truck bodies were becoming damaged due to striking overhead structures such as trees, overhanging wires, etc., and we were incurring

heavy expense in straightening out the roofs. Here's the way we have reinforced the tops of these trucks and trailers to withstand light blows.

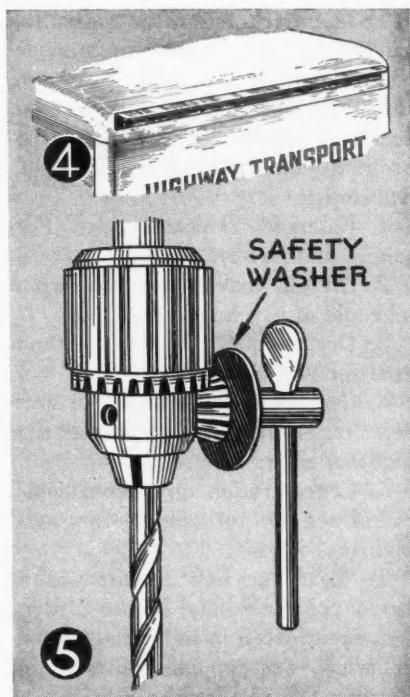
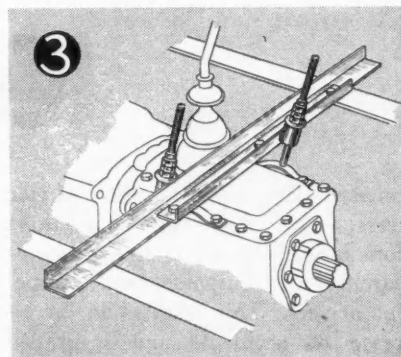
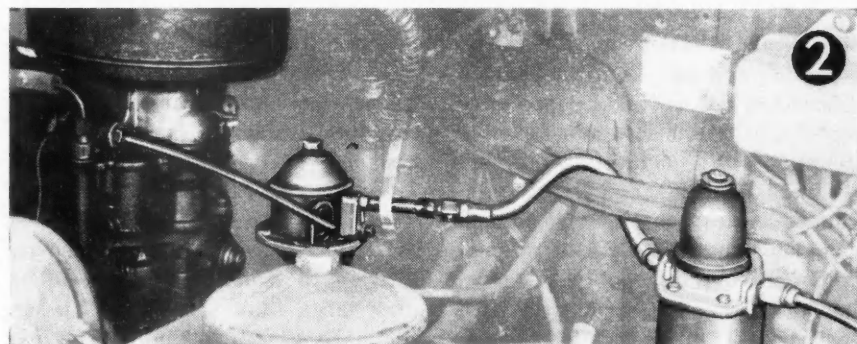
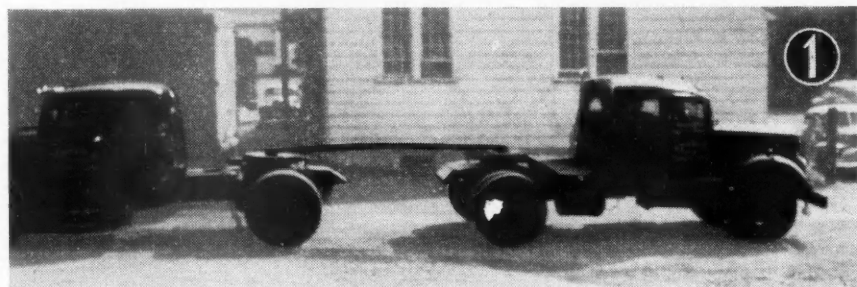
Cut a  $1\frac{1}{2}$  x  $1\frac{1}{4}$ -in. angle iron to the length of the top edge of the roof section. Chamfer the edges to make a rounded off edge. Then bolt the iron along the top of the roof, just one inch from the breakaway curve as shown in the diagram.

## 5. Chuck Wrench Guard

by Harvey Muller  
Auto Service  
Danboro, Pa.

As a chuck wrench is used on a power or portable machine, its teeth wear out or the teeth on the machine's chuck wear. When tightening the chuck the worn wrench slips and catches a finger or part of the hand between it and the chuck.

To prevent this knock the handle out of the shaft; slide a large washer over the shaft as shown.





*There's a file folder record for every Cushman driver. Form printed on outside of folder gives man's history*

**V**ABOUT TWO YEARS AGO, the management of Cushman Motor Delivery Co. decided that it must do something special to lessen highway accidents occurring to its 250 drivers, who operate mostly in easy overnight runs between Chicago headquarters and Milwaukee, Detroit, Cleveland, Indianapolis, Dayton and Cincinnati terminals.

Previous to the war, the Cushman fleet had been credited with an exceptionally good record in the winning of safety awards in the annual ATA and National Safety Council

## Cushman Safety Team's

contests. Then came the days of war stress; with operating congestions from large increase in tonnage, and scarcities in equipment and competent drivers. This resulted in an increase of accidents and insurance costs.

To get back to prewar operating safety standards, Cushman management set up a new safety program, which, during the last year, cut road accidents about 40 per cent. This program has included the following five steps:

1. Enlarged Department of Personnel and Safety.
2. All old drivers put through a schedule of psycho-physical tests.
3. Development of selection standards for new drivers.
4. Careful analysis of recent accident experience, as basis for new highway safety program.
5. Concentration on three-pronged patrol activity to promote improved highway driving.

To head the new Department of Personnel and Safety, Milton C. Perlson, experienced in industrial personnel work, was appointed Director of Personnel, and Charles W. (Chuck)

**New driver selection, training and checking methods used by former champion driver and new personnel manager, plus safety patrols, produce better drivers, cut accidents 40%**

**By Randall R. Howard**

Special CCJ Correspondent

Zimmerman, the Director of Safety.

Zimmerman had been a Cushman no-accident driver for 14 consecutive years. During the last four years of this period he brought national fame to himself and the company through winning three consecutive annual championships in the ATA National Truck Driving Rodeo. During recent months, Zimmerman has been devoting most of his time to personal

highway patrol supervision of Cushman drivers, as part of a three-way plan which also includes patrolling by the Cushman insurance carrier and by a road engineering service.

In the carry-through of the initial big job of giving psycho-physical tests to all of the 250 Cushman drivers, the company was one of the first large Illinois highway truckers to make use of the Mobile Driver



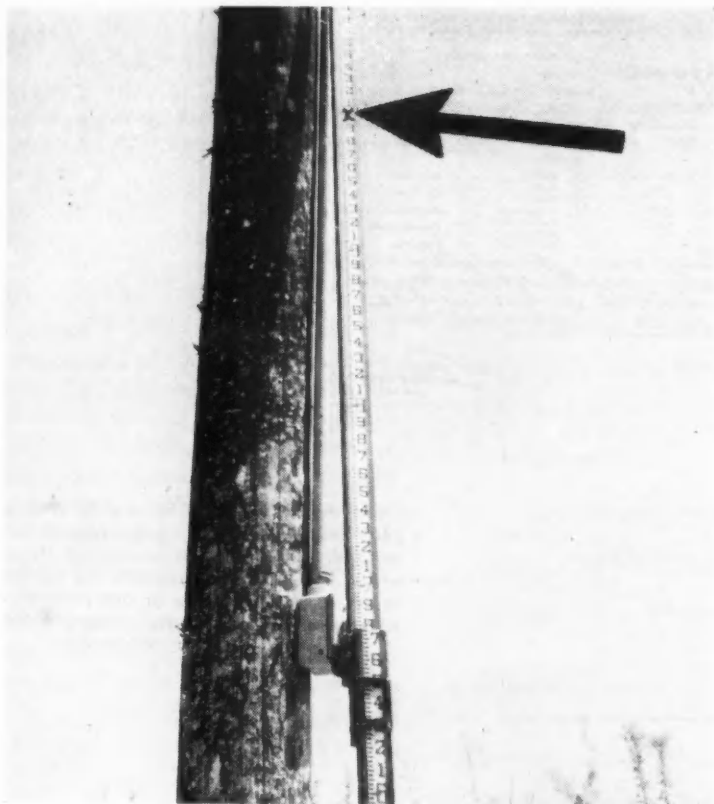


FIG. 1. Close-up of pole shows how high "pumpers" splattered mud. Arrow points to 10-ft mark

# MARYLAND

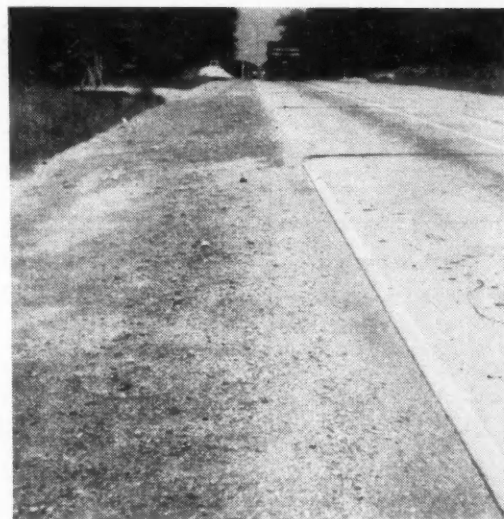


FIG. 2. Upper right. Lower half of photograph shows typical condition of the road shoulders



FIG. 3. This photograph is a close-up of upper portion of Fig. 2. Twenty truck loads of gravel are being spread on all shoulders

TABLE I—Summary of Operation,  
Road Test One—MD.

ITEM	Section 1	Section 2	Section 3	Section 4
1. Period included		Total as of	July 31, 1950	
2. Total days operating	42	42	38	38
3. Days operating 24 hours	36	36	36	36
4. Net operating time—hrs.	697	674	615	533
5. Avg. operating time in 24-hr. period	17.5	16.9	17.0	14.7
6. Frequency of application:				
a. Per 24-hr. period	1,544	1,499	1,090	949
b. Per hour of operating time	88	88	64	65
7. Total number of applications	61,473	59,805	39,439	34,424
8. Mileage driven:				
a. On test section	26,843	26,071	25,593	22,138
b. Total (service mileage inc.)	29,318	28,615	26,209	22,522
9. Gasoline used—gal.	5,024	6,568	6,200	6,986
10. Gas consumption—mpg.	5.84	4.36	4.23	3.23

Section 1, 18,000 lb. single axle; Section 2, 22,400 lb., single axle; Section 3, 32,000 lb., tandem axle; Section 4, 44,800 lb., tandem axle.

AS THIS ISSUE goes to press, Road Test One—MD at LaPlata, Md., is officially two months old. Within that time, a great deal has happened. The events have been widely publicized, creating good and bad im-

pressions—depending upon events.

Because this is one of the transportation industry's most important events in recent years, the project has been personally inspected by scores of the country's most distinguished

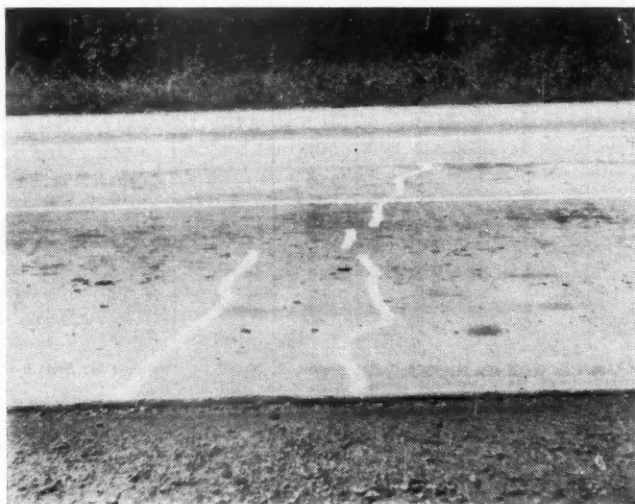
highway engineers, automotive equipment manufacturers, top rank railroad executives, and politicians—some of whom may have a voice in the nation's future transportation policies. In addition, a number of fleet operators and truck drivers have shown sufficient interest to examine the project personally. Representatives from foreign countries are mak-



# ROAD TEST

## Raises Many Questions

Most criticism is "long range," omits evaluation on "accelerated time" basis. Test road has 102 new cracks. 22,400-lb single axle and 44,800-lb tandem axle trucks score most



**FIG. 4.** These cracks are not included in Table 3. Since August 8, white paint identifies new cracks. Darkened soil along paving indicates presence of moist calcium chloride



**FIG. 5.** This joint in the paving was the scene of a lot of pumping. To remedy this, a French drain was constructed. It is shown covered by loose gravel. Later, joint was filled

ing their way to that important pin point on the map of Maryland. Up to this time, a representative from the Union of South Africa has been the most distant visitor.

### Impressions Differ

**I**MPRESSIONS obtained by visitors to LaPlata are not alike. Some are good, some are bad. It appears

### By A. W. Greene

Managing Editor  
Commercial Car Journal

that those who have gained a good impression of the project are those who came with the expectation of finding an honest duplication of existing highway transportation conditions; those who stayed long enough

to have made detailed observations; who have expected no favoritism; who have observed the sincerity of the engineers conducting the test; who have asked questions and kept their minds open.

Those who have left the project with a bad impression appear to be those who arrived on the scene when

(TURN TO PAGE 66, PLEASE)

# Maryland Road Test . . .

Continued from Page 65

seemingly adverse conditions were in evidence; who came before the many testing factors were coordinated; who came with critical minds; who didn't stay long enough and did not ask enough questions or make sufficient personal inspections. This observation is based on the fact that many who have gained bad impressions and returned subsequently to make further observations have come away with changed impressions. It is to their credit that their changed impressions were voiced as fully as their first impressions.

Two of COMMERCIAL CAR JOURNAL's editors, as representatives-at-large of the transportation industry have followed the project very closely. Armed with a number of questions, divergent impressions, and good and bad reports, CCJ editors spent a total of approximately three days just before press time to get the

(TURN TO PAGE 178, PLEASE)

Data in these tables is latest officially available on Road Test One—MD. "Load applications" in Table 2 (Item 7) refers to truck trips per slab. Dates omitted in Table 3 are those on which no pumping surveys were made

## TABLE 3—Summary of Pumping, Road Test One—MD.

Date July 1950	Section Number	Number of Transverse Joints Pumping	Slabs Pumping Along Free Edge		Rainfall—Inches		Remarks
			Number of Places	Lineal Feet Along Edge	Today	Yesterday	
7	1	5	3	—	0	0.15	No record of lineal feet kept
	2	6	7	—			
	3	13	22	—			
	4	17	11	—			
10	1	1	17	38	0.26	0.24	
	2	12	41	245			
	3	24	93	350			
	4	34	102	766			
11	1	—	—	—	0.04	0.26	No survey for Sections 1 and 2.
	2	—	—	—			
	3	18	34	99			
	4	18	71	368			
12	1	0	8	22	0.12	0.04	
	2	4	12	60			
	3	6	33	100			
13	4	35	105	1041	0.44	0.12	Shoulders dragged
18	1	1	5	28	0	Trace	
	2	1	12	81			
	3	5	12	38			
	4	3	21	68			
19	1	0	0	0	0	0	Shoulders dragged
	2	0	0	0			
	3	6	1	5			
	4	12	3	9			
20	1	0	0	0	0.57	0	Pumping survey completed at 3:45 p. m. rain started 4:00 p. m.
	2	0	0	0			
	3	4	0	0			
	4	7	4	6			
21	1	2	16	34	0.02	0.57	
	2	2	27	160			
	3	13	64	189			
	4	31	81	630			
24	1	0	0	0	0.02	0	
	2	0	3	8			
	3	4	1	2			
	4	15	2	6			
25	1	0	0	0	0	0.02	
	2	0	2	3			
	3	0	0	0			
	4	1	0	0			
26	3	0	0	0	0.06	0	No survey in Sections and 2.
	4	0	0	0			
27	3	13	25	69	0	0.06	Traffic stopped to permit resurfacing of turn-arounds.
	4	20	24	211			
31	1	0	0	0	0	0	
	2	0	1	6			
	3	0	0	0			
	4	1	0	0			

Section 1, 18,000 lb. single axle. Section 2, 22,400 lb. single axle; Section 3, 32,000 lb. tandem axle; Section 4, 44,800 lb. tandem axle.

## TABLE 2—Results of Crack Survey on Road Test One—MD.

(All slabs except those on fill sections)

ITEM	Cracks Prior to Tests (6/9/50)				Total New Cracks as of July 31, 1950			
	Section 1	Section 2	Section 3	Section 4	Section 1	Section 2	Section 3	Section 4
1. Longitudinal cracks:								
Number.....	2	4	0	10	5	17	5	21
Total length-feet.....	7.9	7.9	0	24.8	6.7	29.9	7.5	78.9
2. Transverse cracks:								
Number.....	0	6	3	9	4	13	6	19
Total length-feet.....	0	23.0	36.0	67.6	6.2	68.7	25.3	195.0
3. Diagonal cracks:								
Number.....	2	4	0	2	2	0	1	9
Total length-feet.....	14.6	29.5	0	12.3	3.0	0	1.5	108.0
4. All cracks (sum 1, 2 & 3):								
Number.....	4	14	3	21	11	30	12	49
Total length-feet.....	22.2	60.4	36.0	104.7	15.9	98.6	31.8	379.9
Number slabs involved.....	7	9	2	10	8	19	10	37
5. Number spalled places <sup>1</sup> .....	23	42	65	80	1	4	1	11
6. Number small corner cracks <sup>2</sup> .....	14	12	6	8	2	0	2	0
7. Number of load applications.....	0	0	0	0	61,473	59,805	39,439	34,424
8. Total slabs in section.....	51	51	72	72	51	51	72	72

Section 1, 18,000 lb. single axle; Section 2, 22,400 lb. single axle; Section 3, 32,000 lb. tandem axle; Section 4, 44,800 lb. tandem axle.

<sup>1</sup> Small areas adjacent to joints.

<sup>2</sup> One foot or less on a side.

# Fleets Report

## Sealed Beam Headlamps

### Average 43,084 Miles



SURVEY NO. 19

**Fleets can avoid "one-eyed" headlights by changing headlamps at 43,000 miles or use vocational average. Study of switches shows that dimmer switches average 49,275; stop light switches, 46,339**

*Analysis by A. W. GREENE, Managing Editor, Commercial Car Journal*

THE AVERAGE LIFE of a sealed beam headlamp seems to be 43,084 miles. The fact that many fleet operators obtain lower life or a higher one merely indicates that some fleets have a greater or lesser need for headlights. There is little or nothing that can be done to extend the life of a sealed beam headlamp.

Perhaps some fleet maintenance men will wonder why the life of headlamps was not reported on a time basis. Had this been done,

the resulting information merely would have been of academic interest—a check against available manufacturers' data. Each headlamp manufacturer can furnish a fairly accurate estimate of the average life of that part before it is placed in use. Usually, this estimate is given on a time basis.

As has been stated on numerous occasions, the current parts life surveys are intended to aid fleet maintenance men in preventing



43,084 Miles

## What is the Life of Sealed Beam Headlamps?

**Table 1**

In terms to fit PM inspections, headlamps are replaced at an average of 43,084 miles. Dimmer switches average 49,275; light switches, 70,532

VOCATIONAL GROUPS	Number of Fleets Reporting	HEAD LAMPS (SEALED BEAMS)		DIRECTION SIGNAL CONTROL		DIMMER SWITCH		LIGHT SWITCH	
		Mileage		Mileage		Mileage		Mileage	
		Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average
FOR-HIRE CARRIERS.....	18	15 - 100	46,111	20 - 100	49,167	25 - 200	60,278	35 - 200	85,611
FOOD DISTRIBUTION.....	28	10 - 80	34,679	6 - 120	50,176	10 - 120	45,292	30 - 300	71,568
GOVERNMENT.....	25	12 - 100	39,960	5 - 55	28,000	10 - 100	41,455	12 - 100	56,333
CONSTRUCTION AND MINING.....	4	30 - 60	42,500	25 - 100	58,333	50	50,000	50 - 100	66,667
INDUSTRIAL.....	5	10 - 60	45,000	3 - 30	19,333	10 - 75	46,250	10 - 100	65,000
PETROLEUM.....	6	20 - 165	97,500	25 - 150	108,333	25 - 150	62,000	50 - 110	94,167
PUBLIC UTILITY.....	15	15 - 75	36,000	5 - 75	32,778	10 - 100	51,538	20 - 100	65,000
RETAIL DELIVERY.....	16	10 - 150	45,133	10 - 100	38,750	5 - 100	46,429	10 - 200	68,333
TRUCK RENTAL.....	4	25 - 75	43,333	40	40,000	35 - 100	61,250	35 - 100	83,750
TRUCK AND BUS FLEETS, MIXED.....	3	45	45,000	25 - 45	35,000	15	15,000	30	30,000
<b>TOTAL AND AVERAGE.....</b>	<b>124</b>	<b>10 - 165</b>	<b>43,084</b>	<b>3 - 150</b>	<b>43,826</b>	<b>5 - 200</b>	<b>49,275</b>	<b>10 - 300</b>	<b>70,532</b>
ALL VOCATIONAL GROUPS									

Replacement Parts—ELECTRICAL





road failures of the various parts by establishing an approximate period of longevity which can be incorporated into the various inspection periods and, thereby, catch parts failures before they occur. Thus, because most fleet maintenance men operate PM programs on a mileage basis, the life of headlamps was made on the same basis. Of course, for PM purposes vocational group averages and not national averages should be used.

### Light Switches Net 70,532 Miles

THE life of two parts related to the use of headlamps—light switches and dimmer switches—is shown in Table 1. The reported life of light switches varies from 10,000 to 300,000 miles, with 70,532 as the national average.

At first, it was thought that, perhaps, the fleets that reported headlamp life below the national average also might report a lower than average life for switches. But, apparently, there is no direct relationship. For example, the life of headlamps used in the food industry is lower than the national average for this part. The life of light switches reported by the fleets in that industry is higher than the national average for this part. On the other hand, fleets in governmental service show lower than national average life for headlamps and lower than the national average life of light switches. It seems, therefore, that local operating conditions and not mechanical conditions govern the life of these two parts.

Life of the dimmer switch is considerably less, on a national

average, than the light switch. A low of 5000 and a high of 200,000 miles, with an average of 49,275, has been reported for dimmer switches. As in the case of light switches, there seems to be no relationship between the life of a dimmer switch and the life of a headlamp.

Also shown in Table 1 is the life of directional signal controls. This has been reported as low as 3000 and as high as 150,000 miles, with a national average of 43,826. Some of the figures reported here are extremely difficult to explain. For example, industrial fleets show an average of 19,333 and fleets in the petroleum group show an average of 108,333. Just what is responsible for this tremendous difference is difficult, if not impossible, to determine. Because no questions were asked that might indicate why directional signal controls were replaced, it can only be assumed that either degree of usage or quality of manufacture can be responsible.

### Stop Light Switches 46,339 Miles

CONSIDERING frequency of usage, stop light switches seem to give good service. The national average is 46,339 miles, although some fleets report as few as 5000 and others as many as 200,000 miles. The most interesting observation that can be made about the average life of this part is that despite the wide range of individually reported mileages, the vocational averages are more uniform.

Another part that seems to be giving very good service is the ignition switch. While, as with so many other parts, there is a wide range in the reported mileages, the national average is 81,156 with several vocational averages running considerably higher.

It is surprising to note that electrical connectors only average 46,710 miles. There is a wide range in both the individual fleet mileages reported and in the vocational groups. In all probability vocational and local operating conditions influence the life of this part.



### Stop Light Switch Life Averages 46,339 Miles

Table 2

Individual fleet reports on this part vary from 5000 to 200,000 miles but fleet group averages have narrow range. Ignition switches net 81,156

VOCATIONAL GROUPS	Number of Fleets Reporting	STOP LIGHT SWITCH		IGNITION SWITCH		ELECTRICAL CONNECTORS	
		Mileage		Mileage		Mileage	
		Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average
FOR-HIRE CARRIERS.....	18	10 - 200	56,667	25 - 200	96,594	10 - 200	60,385
FOOD DISTRIBUTION.....	27	8 - 100	42,182	20 - 300	78,957	5 - 150	39,550
GOVERNMENT.....	23	5 - 100	44,667	15 - 100	64,900	10 - 100	56,250
CONSTRUCTION AND MINING.....	4	40 - 50	45,000	50 - 100	75,000	20 - 25	22,500
INDUSTRIAL.....	5	10 - 100	54,000	10 - 150	102,000	10 - 50	26,667
PETROLEUM.....	6	50 - 100	65,833	61 - 200	117,200	50 - 150	84,000
PUBLIC UTILITY.....	14	15 - 60	35,714	40 - 125	78,462	20 - 40	27,500
RETAIL DELIVERY.....	16	10 - 150	40,714	10 - 200	63,750	10 - 40	25,000
TRUCK RENTAL.....	4	50	50,000	100 - 200	125,000	20 - 50	40,000
TRUCK AND BUS FLEETS, MIXED.....	1	50	50,000	50	50,000	.....	.....
<b>TOTAL AND AVERAGE.....</b>	<b>118</b>	<b>5 - 200</b>	<b>46,339</b>	<b>10 - 300</b>	<b>81,156</b>	<b>5 - 200</b>	<b>46,710</b>
<b>ALL VOCATIONAL GROUPS</b>							

### Composition of Vocational Groups as Used in the Accompanying Tables

FOR-HIRE CARRIERS—Motor Freight Operators in Local and Over-the-Road Service.  
FOOD DISTRIBUTION—Bakery, Dairy, and Other Food Product fleets.  
GOVERNMENT—State, County, Municipal, and Federal fleets.  
CONSTRUCTION AND MINING—Building, Mine, Quarry, and Gravel fleets.  
INDUSTRIAL—Fleets operated by manufacturers.  
PETROLEUM—Production and Distribution fleets.

PUBLIC UTILITY—Gas, Power, Water, and Telephone fleets.  
RETAIL DELIVERY—(Other than Food Products), Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Store, Beverage fleets.  
TRUCK RENTAL—Agencies leasing motor trucks.  
TRUCK AND BUS FLEETS, MIXED—Passenger carriers operating own truck fleets.



# PICKED pix OF INTEREST TO FLEETS

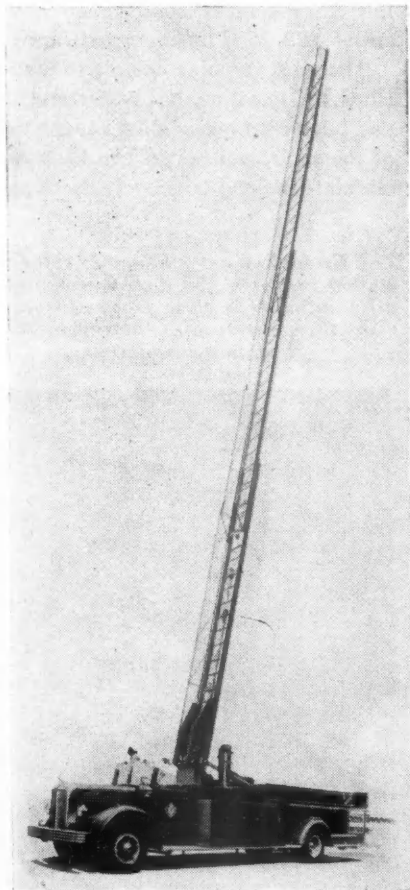
## ▲ Ballantine Forms Disaster Units

Ballantine & Sons have placed their fleet of trucks at the disposal of the New Jersey Civil Defense. The trucks, organized into convoys and personnel trained under an emergency mobile disaster relief program, are on a standby basis for any eventuality. H. D. Pollen (left) is shown inspecting emergency equipment being loaded



## ▼ Mack Hook 'n' Ladder

Incorporating ball bearings in the mount, this aerial ladder now standard equipment on Mack Model 85 fire truck, can be rotated either manually or by power. Ladder can be extended to full 75-ft length in 69 sec. by means of two hydraulic cylinders and can support 250-lb man at end. Chassis is powered by 6-cyl, 213 hp gas engine



## Vacuum Cleans Sewers ▲

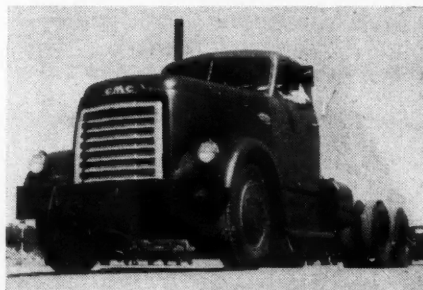
The Karrier-Yorkshire 750-gal gully emptier, utilizes a balanced suction pipe for one-man operation. Vacuum is obtained from combination vacuum and oil pump unit driven from power take-off. Sludge and dirt removed from sewers is discharged into main tank and hydraulic ram forces a piston through length of tank to compress contents

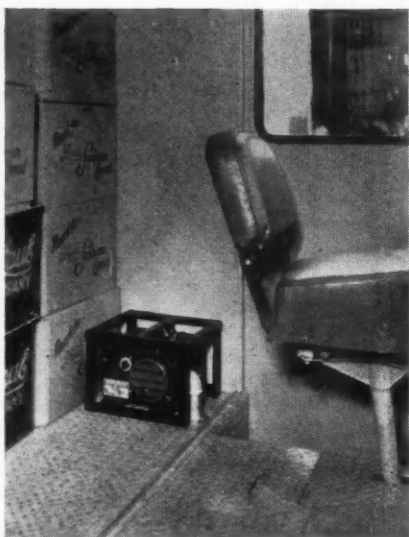
## Conveyor Delivers Coal ▼

Mounted on a White 3000 chassis this conveyor-unloading body was built by Thomas Wright Co., Inc., Jersey City, for Koppers. Featured is the conveyor unloader, powered by a small gasoline engine. Mounted on a dolly, it can be moved to any compartment opening and is fed by gravity from the interior

## GMC 275-Hp Tractor ▼

This unit ready for delivery to the Pacific Inter-Mountain Express of Denver, Col., is said to be the most powerful tractor ever designed by GMC Truck & Coach Div. of GM. Unit is powered by a 275-hp, 2-cycle, 6-cyl diesel engine. Tractor is to be used over the Rocky Mountains from Denver to points West





*Hunter model UH-47 operates from vehicle's battery, independent of engine, for panel or walk-in body*

*Model UH-65 is a packaged unit mounted on front of semi. Heated air is recirculated within cargo space while combustion air is drawn in from outside. Heater, battery fuel tank and controls are located in this housing*



# Cargo Heaters

## Assure Better Cargoes

**A study of heating equipment for perishable cargoes reveals some interesting details on gasoline, LP gas and hot water heaters all designed to provide protection with safety**

WITH more and more special products being shipped to distant points by truck year round, the heating of cargo space has become an important item to the industry. Forward-looking fleetmen accordingly have taken on a relatively new responsibility—that of insuring temperature control within close ranges in order to deliver this perishable freight in the best possible condition. In order to do this they have specified safe, reliable and efficient cargo heating equipment when hauling such items as baked goods, vegetables and vegetable oil products, drugs, paint,

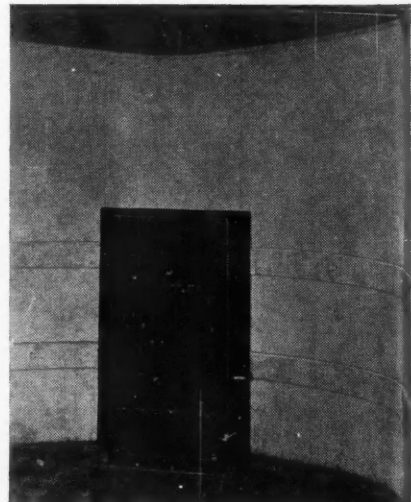
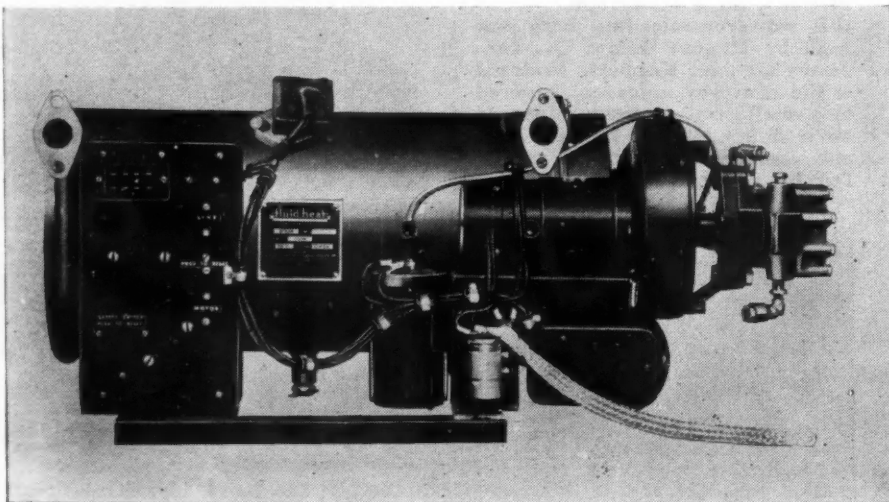
canned goods, chemicals, latex, etc.

Most of these products cannot be hauled at temperatures below freezing, while some items such as baked goods, bananas, latex, are damaged by chilling temperatures above freezing. With the value of this special cargo running into the thousands of dollars it is apparent that good heating equipment is good cargo insurance—and good business assurance.

The most popular heaters today include the gasoline, hot water and LP gas burning types. Most models are of the recirculating type in that they circulate heated air over the cargo

*This automatic, thermostatically-controlled oil heater uses diesel fuel with battery ignition for heating perishable cargoes. This unit is built by Anchor Post Products, Inc.*

*The Evans hot water heater is rated at 60,000 Btu at a 150 deg. temperature differential. It is set in front of trailer, with thermostatically controlled fans providing circulation*



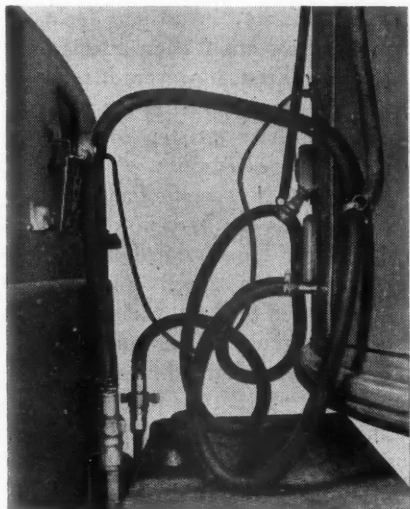


through a system of fans activated through thermostatic control. Most of the heaters on the market operate independently of the vehicle engine, thus providing for heat during overnight parking and in similar circumstances when the tractor is not available. Hot water types, however, do require heat from the engine coolant, but advantage of this type is economy of operation since extra fuel is not required.

Safety of operation, precision temperature control system, simplicity of design and ease of maintenance are featured in most equipment. Figures on fuel consumption for either gasoline or LP gas types are apt to be misleading due to the nature of the cargo, the type of trailer body, the insulation or the temperature differential. It does appear that both types are similar from the standpoint of operating costs.

With the conventional gasoline heaters, fuel is atomized, spark-ignited with a battery, burned and the products of combustion are exhausted to the outside. Safety devices built into the unit insure against fire, exhaust fumes and accidental shut off. Hunter Mfg. Co. produces a small unit of this type designed for light vans and delivery bodies. Measuring only 10 in. square by 9 in. high this heater can be mounted under the cowl of the truck cab or fastened to the floor behind the driver's seat. Fuel is supplied from the vehicle tank through an electric pump. The heater operates from the truck's battery.

**Heater hose arrangement for the Evans heater. Self-sealing couplings permit separation and reconnection quickly and with no loss of coolant. Can be used with dry ice for refrigeration**



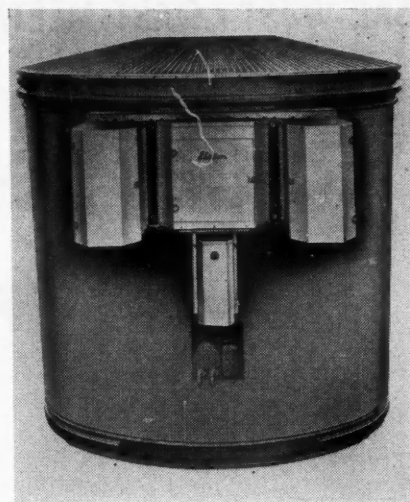
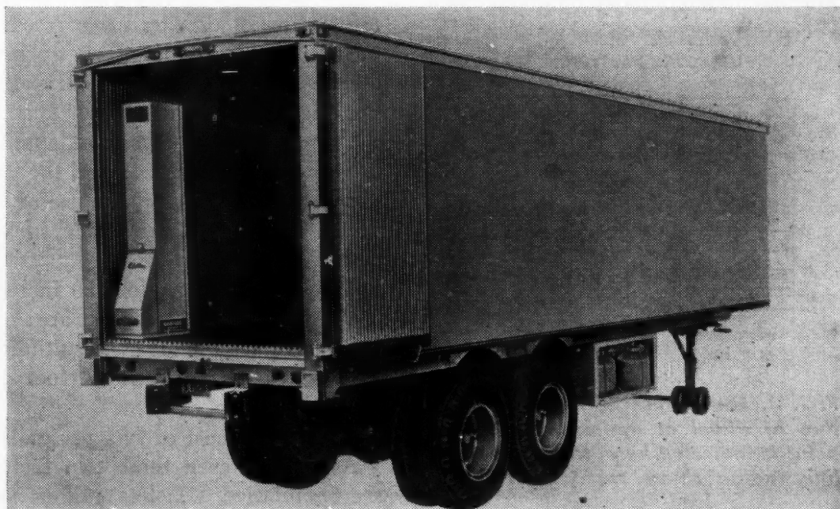
A larger Hunter model is available for large vans or where greater circulation and lower noise level is desirable. The large model supplying 35,000 Btu per hour with an air delivery of 150 cfm is available for trailer bodies. This unit consists of the heating element, fuel tank, battery and controls mounted inside a steel case which is secured to the outside front of the body. Either 6 or 12-volt heaters are available. The unit weighs approximately 225 lb with battery and full fuel tank.

South Wind gasoline heaters built by Stewart-Warner are available in either 6 or 12 volt units. Rated at 18,000 Btu this heater provides instant and continuous forced air circulation for either cargo compartment or driver, or both. Blowers circulate 80 to 110 cfm, while heat is developed within 60 seconds after starting. Three types of controls are available—manual, thermostat or automatic selector. This heater is light in weight, small in size and easy to install. It is particularly suited to stand-up delivery trucks such as milk and beverage jobs, postal delivery vehicles, utility type trucks and light panels.

Evans Products Co. builds a popular hot water type heater designed to mount against the front inside panel of the trailer. This unit is of the recirculating type with air entering through grilles at the base and being discharged through a large opening in the top. A control switch mounted

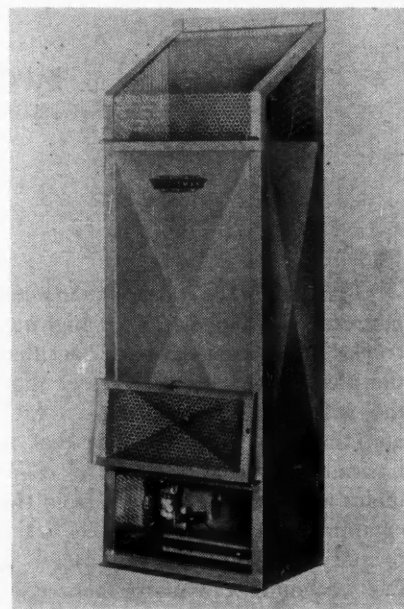
(TURN TO PAGE 128, PLEASE)

**Another Elston model LP gas heater designed for mounting inside the trailer. Two tanks located outside the vehicle supply fuel. Simplicity of construction is featured**



**The Elston propane gas-fired cargo heater designed for front trailer mounting. Unit is thermostatically controlled, self-contained, safe and features a low fuel consumption rate**

**The Scotsman LP gas heater built by American Gas Machine Co. is available in three models—for delivery trucks, for ice bunker installation, and for insulated trailers. Unit is safe and simple**



# Fuel Economy

## Favors the Diesel Engine

Higher diesel engine efficiency, lower cost per gallon of fuel as well as dependability, long life, reduced fire hazard account for the diesel's popularity

By C. R. Boll

Manager Engine Sales, Cummins Engine Co., Inc.

THE PRIMARY and fundamental advantage of the diesel for highway trucks stems from the basic fact that the diesel, being more efficient than the gasoline engine, uses less fuel, and that the fuel is a type that is basically less expensive. The economies afforded the truckers from the combination of these two facts is the primary reason why the diesel is fast becoming the major source of power for those in the truck industry

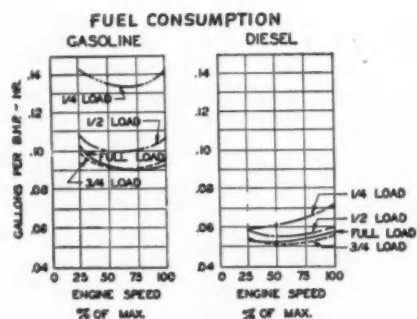


FIG. 2. Lower specific fuel consumption of diesel at optimum operating point is indicated here, while the gasoline engine shows rapid increase as load decreases

who operate vehicles of 150 hp and over.

In the next smaller class of truck which I shall call the medium-duty class—the 125 to 150 hp class—the diesel has just begun to make its appearance in substantial quantities. Three major manufacturers are offering automotive diesels in this category and two additional manufacturers are just now entering this field. These smaller and lightweight diesels are the result of aggressive research programs being carried on by most members of the diesel industry offering high speed diesels.

Unquestionably there are applications for both the diesel and the gasoline engine; however, the use of the diesel, being the newcomer in the field, is still expanding.

The basic reasons for the increasing popularity of the diesel are:

(1) Higher efficiency resulting in the use of less gallons of fuel per mile.

(2) Lower cost of fuel per gallon.

As can be seen these two factors are cumulative, i.e., less gallons and

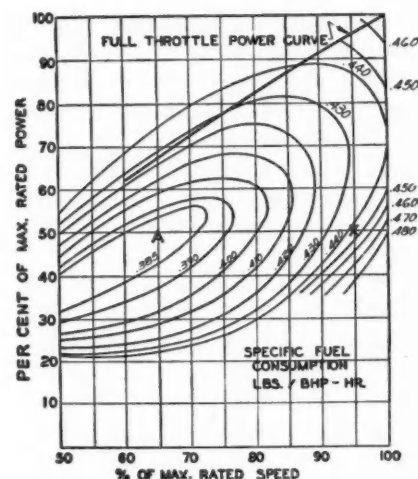


FIG. 1. Fish hook curves show point of maximum efficiency with supercharged diesel at point A, with fuel consumption increasing as speeds and horsepowers increase

less cost per gallon. Other factors, such as dependability, long life, lack of need for "between overhaul" servicing on ignition systems, reduced fire hazard, and better low speed torque, add to the popularity of the diesel. However, fuel savings are of primary importance.

Since fuel savings are of primary importance, let's investigate for a few minutes how application affects these savings. First, however, it is necessary that we understand the fuel consumption characteristics of the gasoline and diesel engines.

Basically, the specific fuel consumption (gallons per horsepower-hour or pounds per horsepower-hour) varies as the engine speed and throttle (horsepower output) varies over the operating range. This variation for a typical supercharged diesel is shown in Fig. 1. This type of chart is obtained from the "fish hook" curves usually made during fuel consumption

(TURN TO PAGE 134, PLEASE)

## Engineering Advancements Reviewed

Operating economy, maintenance efficiency and new engine design made the headlines in the comprehensive program consisting of some sixteen papers prepared for the West Coast Meeting in Los Angeles in mid-August, when approximately 300 engineers and fleetmen gathered at the Biltmore Hotel. Of particular interest to men who use them was the symposium on diesel vs gasoline powered trucks, excerpts from which appear on these pages. Obviously there are advantages to either engine, but there seems to be no universal agreement as to when and where one overshadows the other.

A new diesel power plant ready for the field was described by Cummins, while Kenworth reviewed results of extensive tests with the Boeing gas turbine applied to a motor truck. Admittedly this engine is not ready as yet for ground duty.

From the standpoint of operation several papers were developed. New bi-metallic pistons were described as an answer to many problem engines. Problems in piston cooling and ring groove wear were outlined in another paper; while motor fuels for high compression engines were evaluated in a later discussion. The relation of high additive oils to engine life, engine design and operating conditions received similar treatment in subsequent papers. Accessibility for maintenance came in for a thorough going over by another manufacturer.

HERE are some of the reasons, cost-wise as well as others, for the very large percentage of gasoline powered vehicles:

1. The smaller trucks are manufactured mostly by passenger car companies, using the standard or modified car engine or perhaps a new larger truck engine. Large volume induces lower cost.

2. Lots of trucks, still operating, are quite old, 28 per cent of the total are over ten years old, and there were very few diesel trucks made ten years ago.

3. Type of service: light, city delivery, start and stop, and lots of idling.

4. Easy starting in coldest weather.

5. Power output per cubic inch at maximum speed is greater; by about 40-50 per cent on the small 100 hp class, at about 0.45 hp per cu in. on gasoline versus 0.30-0.33 on diesel, and 60-65 per cent on the larger 150-

200 hp class, at about 0.38-0.40 hp per cu in. on gasoline versus 0.23-0.25 on diesel. Diesel power basis same as gasoline, that is, four-cycle, non-supercharged.

6. Weight is less per cu in., and there is a still greater weight saving on a horsepower basis, which is further improved by the lower weight starting system, including battery.

7. Noise at both idle and loaded is more favorable.

8. Odor of exhaust is not objectionable, even in city traffic.

9. Smoke is no problem compared with some diesels with poorly adjusted injection pumps or pumps set over rich, particularly at full throttle.

10. Oil change periods are less.

11. Lubricating oil used is less.

12. Lubricating oil filter change required less frequently.

13. Speed of engine generally allowed is higher.

14. Cost of repair parts when required is less.

15. Overhaul periods are about the same.

16. Cost of engines.

# Gasoline Engines Offer Many Advantages

Savings in weight, repair parts, original costs—

favor the gasoline engine. It takes 65,000 miles

for diesel fuel savings to offset the initial cost

By L. L. Bower

Chief Engineer, Waukesha Motor Co.

## GASOLINE POWERED VEHICLES

1. Are cheaper
2. Are easy starting
3. Offer weight savings
4. Are quieter
5. Do not smoke
6. Require less oil changes
7. Use less lubricating oil
8. Turn up higher rpm
9. Cost less to repair
10. Offer greater power output per cu in. at maximum speed

As an example of item on engine costs, in the 100-125 hp class, about 300-320 cu in. displacement, a gasoline engine lists at about \$575.00 bare and with all accessories, less battery, about \$710.00, while the same size diesel would be \$1250.00 bare, \$1420.00 with all accessories, or exactly twice the gasoline. In the 200-240 hp class, about 775 cu in. displacement, the gasoline engine bare \$1850.00, with accessories

(TURN TO PAGE 160, PLEASE)



# Tire Supply Adequate but Controls are Coming

Larger truck tires will stay at 100% crude rubber.  
Tubes may go to 100% butyl, but supply is ample. Capacity of 940,000 tons of American rubber is available

By Len Westrate

CCJ Detroit News Editor

## LATE FLASH

On Aug. 18, tire industry representatives in Washington are reported to have agreed on a voluntary rubber control plan which would provide allotment of materials to individual companies based upon consumption during the period July 1, 1949, to June 31, 1950. No official announcement had been made, however, as this issue went to press and still undertermined was the question of whether these voluntary controls would be accepted by govern-

ment agencies. It was both hoped and probable that they would be so accepted.

Immediate effect of the voluntary control plan was a reduction in the price of crude rubber to the vicinity of 40 cents. But it was also expected that this would reduce total tire production from its current abnormal level to approximately that of the last fiscal year. Such a reduction in output would probably stave off any reduction in tire prices, at least for the time being.

IF IT HASN'T HAPPENED already by the time this appears in print, you can be sure that some type of controls over the rubber industry will be established soon. This does not mean rationing, at least for the time being, at the retail level, since the tire industry is certain that there are plenty of tires for all essential purposes if they are not hoarded.

Consensus among the tire manufacturers is that there may be an arbitrary limit on the use of natural rubber in order to conserve and build up the government's stockpile against a possible shortage later if the flow of crude rubber from the Far East should be greatly slowed up or halted altogether. The situation, however, is vastly superior to what it was at the outbreak of World War II as to crude rubber stocks on hand and particularly with respect to the productive capacity for American-made rubber. *There is today capacity of about 940,000 tons of American-made rubber available in this country, compared with an estimated 4500-ton annual capacity in 1940.*

Prevailing opinion in the tire industry now is that the commercial over-the-road larger sized tires will get preference in the use of natural rubber. Already some companies are

(TURN TO PAGE 172, PLEASE)

## RUBBER SITUATION IN THE UNITED STATES — 1940 versus 1950

(All figures in Long Tons)

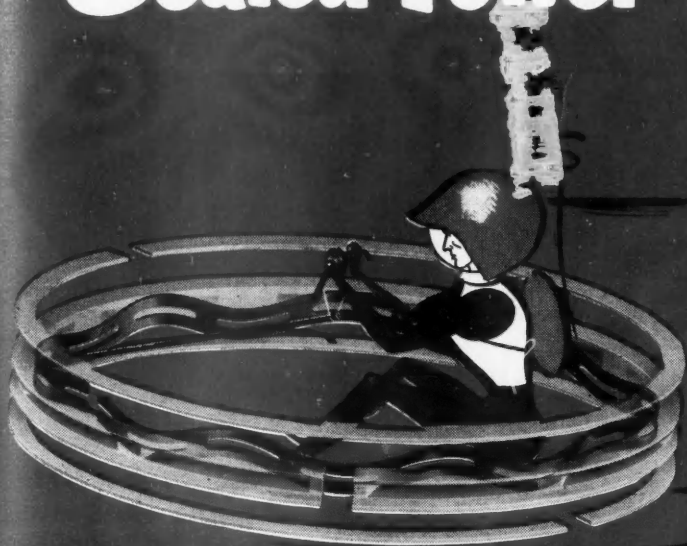
	1940	1950 (Est.)	Change
<b>RUBBER CONSUMPTION</b>			
Crude.....	648,500	650,000	+ 1,500
American-made.....	2,560	500,000	+497,440
Total.....	651,060	1,150,000	+498,940
<b>CRUDE RUBBER IMPORTS</b>	811,564	690,000	-121,564
<b>AMERICAN-MADE RUBBER PRODUCTION CAPACITY</b>			
Annual Production Rate (as of July 31).....	4,500 Est.	940,000	+935,000
Annual Production Rate (as of Dec. 31).....	2,000 Est.	547,000	+545,000
	4,000 Est.	740,000	+736,000
<b>CRUDE RUBBER STOCKS</b>			
Manufacturers, Dealers, Importers, etc.....	176,054	101,079	- 74,975
Government.....	112,810	N.A.*	Increase
Afloat to U. S. A.....	145,950	93,000	- 52,950
<b>TOTAL Crude Rubber Stocks.....</b>	<b>434,814</b>	<b>N.A.*</b>	<b>Increase</b>
<b>AMERICAN-MADE RUBBER STOCKS.....</b>	<b>100</b>	<b>74,672</b>	<b>+ 74,572</b>
<b>AMERICAN-MADE RUBBER FACILITIES</b>			
Government Owned:			
Rubber Producing.....	None	{ 14 Copolymer plants (GR-S)	
Component Materials.....	None	{ 2 Butyl plants	
		{ 12 Butadiene plants	
		{ 1 Styrene plant	
Private:			
Rubber Producing.....	{ 2 Butadiene-type plants	{ 1 Copolymer plant	
	{ 1 Neoprene plant	{ 2 Neoprene plants	
		{ 5 Butadiene-type plants	
		{ 5 Butadiene plants	
		{ 4 Styrene plants	
Component Materials.....			

From little more than a pilot plant operation in 1940 to a full-grown industry in 1950

\* Not available but believed much more than in 1940.

Source: Courtesy of B. F. Goodrich Co.

# FLYING SAUCERS ? NO! Sealed Power Piston Rings



## MD-50 STEEL OIL RING

The only ring with the  
FULL-FLOW SPRING

Best for  
**OIL CONTROL**  
even in  
**BADLY TAPERED**  
and  
**OUT-OF-ROUND BORES!**



Double the Drainage  
with Half the Drag!



SEALED POWER CORPORATION, MUSKEGON, MICHIGAN


# Sealed Power Piston Rings

BEST IN NEW TRUCKS

BEST IN OLD TRUCKS

# free PUBLICATIONS

A selected list of the latest literature —  
catalogs, pamphlets, charts—chosen to help  
fleetmen improve operation and maintenance.



FOR YOUR  
CONVENIENCE  
USE THIS  
POSTCARD

## L41. Gas Engine Lubrication

With the interest in LP gas engines, dual-fuel developments and diesel power plants for commercial vehicles, fleetmen should be interested in this study of lubrication as applied to gas and dual fuel engines. While much of the material applies to stationary power plants, the background provided by this interesting booklet can be carried over to automotive engines.

The operating principles of dual fuel operation are explained in detail with sectional views in color showing just how this engine functions. Lubrication systems of the engines are treated in much the same way with theory and test data being provided through illustrations and easily read text. One section devoted to a trouble-shooting guide shows common causes of such malfunctioning as sticking rings, bearing fail-

ures, carbon deposits, high oil consumption, lack of power, etc.

Many of your fleet personnel will enjoy reading this interesting booklet. Write L41 on the postcard for a copy.

## L42. Paint Shop Plan

You may now obtain free copies of a very practical new layout plan for a typical automotive body and paintshop arrangement. The plan is for a shop capable of handling eight to ten complete refinishing jobs per day in addition to normal spotting and touch-up service. It shows an ideal setup for large volume refinishing, although it can be condensed when the available building or floor space necessitates it.

Write L42 on the accompanying postcard for a copy.

## L43. Lubrication Booklet

"The Fundamentals of Lubricating Greases and Their Application" are covered graphically and colorfully in a new educational booklet just made available to the fleet field.

The new booklet is printed on heavy, glossy paper and contains 40 pages of text, photographs and drawings, many in color. The basic theme is its explanation of the scientific principles that make greases a separate category of lubricants. They are far more than "thickened oils," the booklet explains. They have distinct and specially-planned qualities that fit them for jobs that oils are not meant to do.

Besides describing the make-up and general character of greases, the booklet discusses the jobs greases can do best and tells how greases are made to do particular jobs. A seven-page section, containing many illustrations, shows how greases function in anti-friction bearings, centralized lubrication systems and machinery. Just write L43 on the postcard for a free copy.

## LATE PRODUCT FLASHES

Safe-T-Seal, a new ignition sealer, which is said to stop drowning out of motors and promote quick starting is offered by Safe-T-Seal, W. Los Angeles, Calif.

The Whiz Lusterize auto beauty kit, a liquid car cleaning and waxing combination, has just been introduced by the R. M. Hollingshead Corp., Camden, N. J.

A tool for retrieving bolts, etc., dropped into inaccessible spots, is announced by the Herbrand Div., Bingham-Herbrand Corp., Fremont, Ohio. It is their new magnetic pick-up tool which is said to lift up to 2½ lbs.

Foster-Built Bunkers, Inc., Chicago, has just developed a dry ice truck bunker with a rear loading feature to permit re-icing with dry ice without shifting a truck's load.

A 3000-lb capacity fork lift truck, designed and engineered specifically for that capacity, has just been announced by Transitier Truck Co., Portland, Ore.

A new, rigid type brake lining, named Grizzly "Silvertip" and designed specifically for multiple-stop truck and cab operations, is announced by Grizzly Mfg. Co., Paulding, Ohio.

Snap-On Tools Corp., Kenosha, Wis., now has available three new Flex-Head wrenches. The double-hexagon, broached heads flex over 180 deg.

Crane Packing Co. of Chicago, Ill. has announced the addition of a special new feature, a securely vulcanized tape-back as an integral part of all "Super Seal" spiral packings.

Complete tools necessary to make any speedometer cable are included in the new Universal Speedometer Cable Repair Kit, No. 404-K, manufactured by Champ-Items, Inc., St. Louis, Mo.



# New PRODUCTS

FOR YOUR  
CONVENIENCE  
USE THIS  
POSTCARD

Illustrating and reviewing newest developments

in parts, accessories, shop equipment and tools.

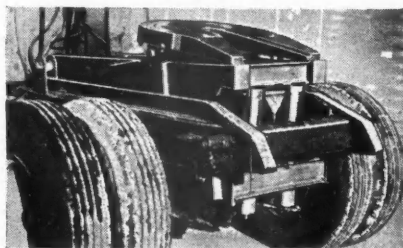
For more information use the attached postcard.

## P265. Reversible Drill

A new standard duty, 1/2-in. electric drill with built-in toggle-type reversing switch, was designed for deep boring. The tool turns in reverse at a flick of the switch—eliminating hand turning and struggling to remove the bit. It has die-cast aluminum body and weighs 8 1/4 lb. Its capacity is 1/2-in. in metal, 1-in. in wood. The Universal AC-DC 115 volt motor develops 550 rpm no-load speed. Cummins Portable Tools, Chicago, Ill.

## P266. Hydraulic Wheel

This hydraulic fifth wheel provides an upward thrust of 37,500 lb and a lifting height of 11 in. The unit, complete with power take-off, can be installed on practically every 34- to 36-in frame. Fifth wheel is mounted on frame pivoted at the front and raised by means of two hydraulic rams in the



rear. One man operation and the elimination of hand-cranking the landing gear in trailer spotting is featured. Cemco Industries, Inc., Galion, Ohio.

## P267. Dump Truck Hoists

Two new platform truck hoists, Models 702 and 752, incorporate a series of fulcrums located in two lift arms, and are geared to the load through transfer lift linkages which automat-

ically "shift" the load from "low to high." Thus, at any angle in the dumping cycle, all of the lifting force is directed upward and into the load. Strong stress-welded sub-frames, new drop-forged cross heads, new double-shaft pumps for either vertical or horizontal installation and strengthened under body longitudinals made integral with the hoist are featured. Payload capacities are 10 to 12 tons for the 752 and 7 to 9 1/2 tons for the 702. The Galion Allsteel Body Co., Galion, Ohio.

## P268. Electric Saw

A new, 6-in. THOR portable electric saw features long shaft transverse mounting, no power-wasting worm or bevel gears; die cast aluminum housings; steel inserts for bearings and threads; built-in saw blower, steel rip guide, giant switches, automatic ball bearing blade-guard with rubber snubber and finger-tip control for depth and bevel cuts. Independent Pneumatic Tool Co., Aurora, Ill.

## P269. Paint Remover Torch

A new paint removing burner uses a new principle in which an oxyacetylene flame is supplemented by a low-velocity flow of pure oxygen, resulting in rapid oxidation of the heated paint. Replaceable, wear-resistant guide shoes maintain correct distancing of the burner from the metal surface. Speed on an average painted surface is estimated at 600 sq-ft per hour using a 4-in. burner. National Cylinder Gas Co., Chicago, Ill.

## P270. Spark Plug Cleaner

The new spark plug cleaner combined with a spark plug indicator features easily read indicators; large capacity



water trap; easily accessible compound container for refilling; spindle shelf for storage of gaskets and adapters.

The unit is streamlined in design with baked enamel finish, blue, with orange and white. Over-all dimensions, 20-in. high, 18-in. wide, 14-in. deep; weight 20-lb. AC Spark Plug Div. of General Motors.

## P271. Electric Choke

The "Electrimatic" choke assures correct choking at all engine temperatures through action of electro-magnet and strong thermostat spring. With cold engine electro-magnet supplies

(TURN TO PAGE 78, PLEASE)

# New Product Descriptions

Continued from Page 77

power for initial choke. Closes choke valve to proper position required by engine temperature when starter button is pressed. With release of starter button, electro-magnet becomes inactive and choking action is taken over by the thermostat spring.

During extremely low temperature auxiliary spring opposes full-choke action of thermostat spring and maintains close regulation of choking until temperature reaches 70 deg. At this point auxiliary spring becomes inactive, thermostat spring permitting choke valve to open in direct proportion to engine heat. Sisson Choke Div., Pierce Governor Co., Inc., Anderson, Ind.

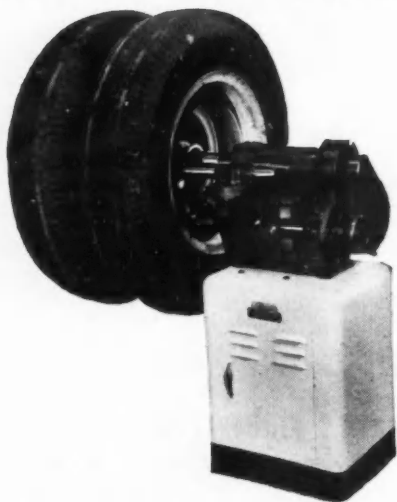
## P272. Sweeper-Trailer

A new engine-driven trailer sweeper of the three wheel type, is powered by a 15 hp Wisconsin air-cooled engine. The sweeper, built for one man operation, is towed behind a car, truck or tractor.

Brush is available in 6, 7, 8 or 9 ft lengths, with a 32-in diameter. The frame, of 4-in structural channels, is supported by three wide base wheels with 18-in x 5.50—six-ply balloon tires. Frame length is 11 ft overall with an exceptionally low overhead clearance of 4½ ft. Little Giant Products, Inc., Peoria, Ill.

## P273. Brake Drum Lathe

The Model DL-21-FM brake drum lathe has a maximum turning capacity of 25-in. by 7-in. It is powered by a

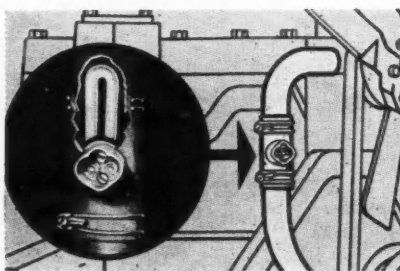


½-hp motor totally enclosed in the base. The unit includes a guard, work light, automatic feed and shut-off. It is said to deliver a mirror finish without stand-

ing, grinding or polishing. The door in the base gives access to storage space. Dixie Machine Tool Co., Cincinnati, Ohio.

## P274. Quick Engine Heater

A "Calrod" engine heater pre-warms the coolant which surrounds the engine block. The device consists of a G-E Calrod tubular heater (immersion type) that is not effected by anti-freeze compounds. Obtaining current from an out-



side source, it is rated 400 watts at 115 volts to provide ample heat even at sub-zero temperatures.

The heater is inserted into a small hole cut in the lower radiator hose. Two screws tightly clamp the hose between the terminal guard and the base plate of the heater making a permanent, water-tight joint. The radiator is then refilled and the heater is ready to be plugged in. The heater kit comes with two cord sets. General Electric Co., Schenectady, N. Y.

## P275. Brake Adjuster

The Brakemaster is a device that compensates for lining wear of truck, trailer and bus cam-actuated air brakes by automatically taking up the slack. The adjuster is mounted on a splined camshaft of cam-actuated air brakes and the power arm is connected to the push rod from the air brake diaphragm. The anchor arm is mounted on the brake assembly. The power arm engages ratchet gears in the adjuster and as the lining wears, the power arm gear slips from tooth to tooth of the ratchet and advances the brake camshaft. A dial on the unit indicates the extent of brake lining wear. Brakemaster Corp., Chicago, Ill.

## P276. Cushion Sander Pads

The new cushion-type sander features the new Flexbac pad, which enables waterproof paper sander discs to follow

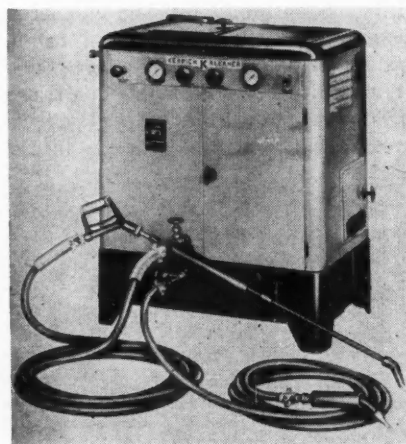
body and fender contours. The pad is described as a resilient rubber pad approximately ¾-in. thick and 8½-in. in diameter, having a coat of special pressure sensitive adhesive on both sides. A Carborundum Flexbac or Fastcut waterproof paper disc 8¾-in. in diameter is attached to the pad by means of the adhesive, an extra can of which comes with each pad. It can be used dry or wet on air or electric equipment operating from 950 rpm to 1300 rpm. Carborundum Co., Niagara Falls, N. Y.

## P277. Hose Tender

The Hitch-Hiker air brake hose tender consists of a steel tube, attached to a specially tempered coil spring, 15/16-in. in diameter, mounted on a heavy steel base. Furnished in two models, one to be bolted to a cross member behind the cab, the other to be bolted or welded to the gas tank saddle. The hose lines run through a pair of weather-resistant rubber-impregnated loops at the top of the tube. The air valves fit through holes in the base. The unit is 41-in. high and holds the hose up and out of the grease and permits use of hose lines up to 1½-ft shorter than usual. Franklin Industries, Acton, Ind.

## P278. Steam Cleaner

Model AR Kerrik Steam Kleaner combines in one unit a steam cleaner of 150-gal per hour capacity and a high pressure rinse unit of 275-gal per hour,



at 150 psi. The rinse can be used either hot or cold for washing bodies. Conversion from steam cleaning to high pressure rinse is accomplished with a turn of a valve. Washing is done merely by holding the nozzle of the hose at some distance from the object being cleaned. Clayton Mfg. Co., El Monte, Calif.

(TURN TO PAGE 194, PLEASE)

# HEIL

## USES

# S HULER AXLES



Yes, they're *all* Shulers! The axles under these two 4000-gallon Heil Trailers are Shuler Magnesium Axles, and the front axle under the big Hendrickson Tractor is also a Shuler!

## THERE ARE NO BETTER AXLES, AT ANY PRICE!

Since 1915, Manufacturers of: *One-Piece* Tubular and Square Commercial Trailer Axles, Heavy-Duty Front Axles for Trucks, Busses, and Off-Highway Equipment, Low-Bed Machinery Trailer Axles, Heavy-Duty Vacuum and Air Brakes, Miscellaneous Forgings.

**SHULER AXLE COMPANY, Incorporated, LOUISVILLE, KENTUCKY**

**DETROIT OFFICE**

54 James Couzens Highway

**CHICAGO OFFICE**

615 Davis St., Evanston

**DALLAS OFFICE**

3402 McFarlin Blvd.

**EXPORT DIVISION**

38 Pearl St., New York

**WEST COAST WAREHOUSE**

1280 Forty-Fifth St., Oakland

**SOUTHWEST WAREHOUSE**

301 N. W. 28th St., Fort Worth

**NORTHWEST WAREHOUSE**

1238 N. W. Glison St., Portland



# Simple Switches Switch Manual Controls to Automatic

By Wm. H. Powelson

Superintendent of Equipment  
Southern Pennsylvania Bus Co., Chester, Pa.

**A** FEW INEXPENSIVE micro-switches, plus a little labor, have resulted in excellent time-saving devices which have contributed considerably towards general garage efficiency and economy on our property.

## Automatic Water Control

**A** GOOD example of one such application is to be found in our wash bay. There we erected a shower-type bus washer, using one and one-half in. galvanized pipe and Rex No. 8 spray nozzles made by the Chain Belt Co. At two locations overhead, we installed micro-switches which control the flow of water as needed. These two switches are connected in parallel. One is located approximately 8 ft in front of the washer and the other approximately 2 ft on the other side.

Similar to that shown in Fig. 2, a piece of old rubber hose was attached to each of the switches. As a bus enters the wash lane it contacts the hose which is deflected in the direction the bus travels, actuating the micro-switch. The switch controls the operation of the solenoid which opens the water supply valve.

Part way through the wash lane the bus strikes the hose actuating the other micro-switch. This latter switch, hooked in parallel with the first one, assures the continuation of water flow from the spray rack. If this second switch were not incorporated, water would be cut-off before the wash was completed, because the first hose returns to its normal vertical position in following the rear slope of the vehicle.

The use of micro-switches in the



*FIG. 1. Bus moving slowly through wash lane after being thoroughly wet down with detergent-water mixture. Rubber hose actuating second control micro-switch can be seen contacting the bus roof between the middle and left light above the destination sign. Spray of water obscures the first micro-switch control unit*

**Chester (Pa.) property used \$2 switches**

**to conserve manpower, improve efficiency,**

**increase garage safety and conserve fuel**

wash bay not only makes it unnecessary to turn the water supply on and off by hand, thereby conserving water, but it contributes to a faster and simplified bus washing procedure.

## Bus Washing Procedures

**T**WO BUS washing procedures are employed in our operation. During rainy periods or when buses are covered with a light dust or dirt, we run them through the wash lane once without using any soap or detergent. The pressure streams from the spray nozzles perform a satisfactory job in

removing any dust or dirt on the vehicle.

Usually on two nights during the week all the buses are given a more thorough cleaning. When the bus enters the wash lane, two washers, one on each side, soak the bus with a detergent-water mixture. The bus then moves slowly forward, actuates the micro-switch controlled, solenoid-operated water valve, is completely flushed down and all dirt and grime is removed.

The detergent-water mixture used is supplied under pressure from tanks  
(TURN TO PAGE 82, PLEASE)



2-ton shown with 15-foot high-rack body—also available on 1½-ton chassis

## New kind of truck sets new records in thrift!

**A**LL over the nation you hear fine reports on Studebaker trucks as low-cost performers.

Owner after owner finds that Studebaker trucks excel impressively in mile for mile comparisons of gasoline consumption.

What's more, the maintenance expense on Studebaker trucks is amazingly and consistently low—thanks to a new kind of structural strength that's inherent in Studebaker's truck engineering.

Stop in at a nearby Studebaker showroom. Get clear-cut proof of the superior pulling power,

staying power and earning power of Studebaker trucks on your kind of work.

Check up on the big reductions in costs that many Studebaker truck owners are effecting.

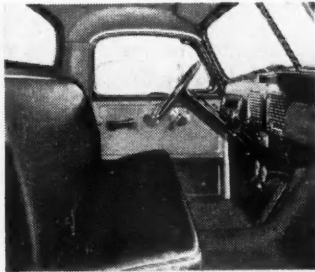
Studebaker trucks come in sizes and wheelbases for literally hundreds of varied hauling needs—½ ton, ¾ ton, 1 ton, 1½ ton and 2 ton models.

### STUDEBAKER TRUCKS

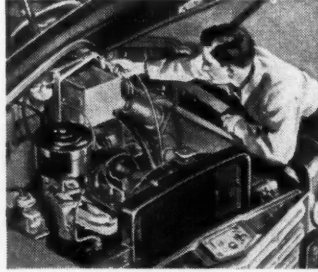
*Noted for low-cost operation*



**First trucks with automatic over-drive!** This advanced transmission, available at extra cost in ½ ton and ¾ ton Studebaker trucks, saves extra gas and checks engine wear, greatly lengthens the truck's life.



**World's finest truck cab!** Interior of ½ ton model shown with steering post gear shift. Enclosed steps. Wide visibility. Foot-regulated floor ventilators. Window wings. Rotary door latches. "Hold-open" door stops.



**World's easiest trucks to service!** Unique "lift-the-hood" accessibility brings engine and ignition within easy arm's reach. No standing on a box. Instrument panel wiring is located on engine side of the cowl.



**Built by father-and-son teams** and other conscientious craftsmen, all the Studebaker trucks stand up amazingly, stay remarkably free from the need for serious repairs. ©Studebaker, South Bend 27, Indiana, U.S.A.

## Simple Switches . . . . . Continued from Page 80

which we constructed ourselves, and which are located in a room adjacent to the wash lane. (For construction details and other information about these mixing tanks, see Shop Hints, this issue, Page 60.)

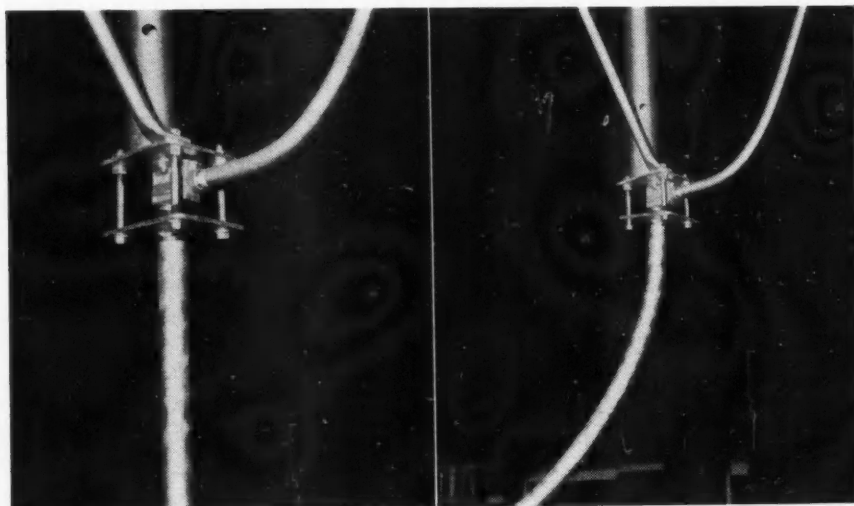
An alternative washing procedure which we occasionally employ whenever a unit is extremely dirty, is to run the vehicle forward through the wash spray and then back through it again to give the vehicle a thorough wet down. Then the detergent-water mixture is sprayed on, and the unit passes finally forward through the spray for the rinse off. It then moves on to its regular parking place to dry.

### Automatic Door Control

**A**NOTHER example of the effective use of micro-switches is to be found controlling doors at the entrance to our garage, shown in Fig. 2. This is an especially good application. In addition to conserving manpower for manual operation of the doors, it also expedites the movement of buses into the garage and makes accidental closing of doors on top of a bus impossible. One of the most important advantages is that, because of the prompt closing feature, it prevents the garage from being chilled on cold days. This contributes to the comfort of the men in the garage and conserves fuel—fuel to heat the garage and bus fuel, an unnecessary amount which would be consumed while the bus is waiting for the garage doors to be opened and while the driver stops the vehicle to close doors under manual operation.

Operation of the automatic door control is very simple. As a bus approaches closed doors, it comes to a stop at a point approximately 10 ft from the doors. At this point, the bus contacts a section of hose attached to a micro-switch. This actuates, through a relay, the door-opening switch, raising the doors. As the bus travels through the doors, it contacts another micro-switch located about 30 ft. inside the garage. This switch, through the relay mechanism, lowers the door.

We use two safety devices to prevent accidental closing of the door on



**FIG. 2.** Micro-switch installation consists of flat plate welded to a pipe hanger at desired location. Micro-switch is bolted to this plate. Bottom plate, suspended from the upper plate by four bolts, has short pipe welded to bottom to accommodate radiator hose. **LEFT.** Rubber hose shown in normal vertical position. **RIGHT.** When hose is deflected lower plate moves and presses on micro-switch, which energizes solenoid-operated control switch in door operating circuit

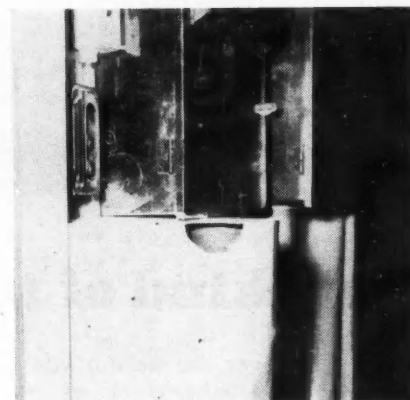
the bus or any person that may be walking through. This is a photo-electric cell shown in Fig. 3, which is mounted low on one side of the door with its companion unit mounted high in the other side of the door. A bus or person interrupting the connecting light beam causes the door to stop operation.

The other safety device, which is used on all doors, consists of a red and green light. When the doors are either opening or closing, the red danger light remains on. As soon as the door is fully open, and only then, the green, go-ahead signal comes on.

An alternative safety device, to protect the vehicles could be incorporated at the door frame and would consist of another micro-switch control, connected to the stop circuit in the electrically operated door switch. This would provide adequate protection for a minimum cost.

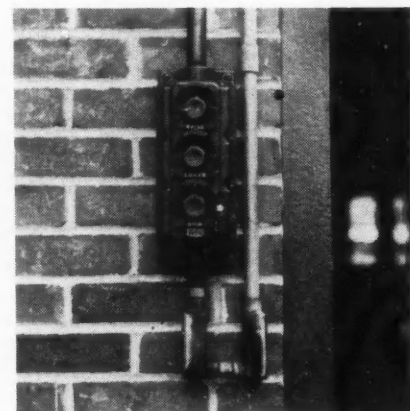
Our exit doors on the extreme far end of our shop are controlled by the usual electric switches located next to each door. A photo-electric cell circuit, with the light beam running approximately 2 ft above the floor, prevents the closing of the doors whenever the beam is broken by a vehicle, individual, or any other object. There is no automatic closing device on these doors, but should the driver neglect to close the doors, a

(TURN TO PAGE 138, PLEASE)



**FIG. 3.** Inside photo-electric cell unit, used to prevent door closing whenever vehicle or person interrupts light beam. This unit mounted low, is protected by sheet metal housing. Companion unit, also inside, is suspended from ceiling about 3 ft from door to widen effective protection range

**FIG. 4.** Manual-controlled door switch used to operate doors from outside







## Here's what we mean by

TOP-QUALITY, nationally-known parts are built into Marquette Battery Testers and Chargers. That's the reason they're outstanding for accuracy, trouble-free service, long life, and VALUE.

# MARQUETTE quality

● Time I was checkin' up on my Hi-Rate Battery Charger. I've been usin' it right along, but soon as foot-ball weather is in the air just seems natural to give it a goin' over to see that everything is ship shape.

\* \* \*

● There's a piece of equipment I wouldn't be without. In fact, been thinkin' lately I ought to get another one to handle some of the load. In winter time 'specially things come pretty thick and fast and it doesn't pay to be caught short with too little equipment. Believe me, my Marquette really charges 'em up fast, and it doesn't take half the work of the old slow chargin' method.

\* \* \*

● Keeping a lot of equipment rolling over the roads is a big job. Regular inspection and servicing of batteries is mighty important. It can save plenty of dollars in lost time due to breakdowns. It's so easy to make the 20-second Marquette test that there's really no excuse for not having every battery operating 100%.

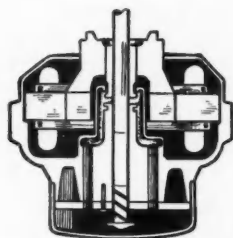
\* \* \*

● Here's a tip! Keep those Battery Charger Clamps clean for accurate testing and cool charging. A little ammonia or baking soda in water and a stiff-bristle brush will do the trick. Be careful not to spatter with the bristles so as to damage clothes. Always wash off clamps with clear water.

\* \* \*

● With just a minimum amount of attention your Marquette charger-tester will keep giving you good service year after year. Treat it like the wonderful piece of equipment that it is. That means adding a little polish and elbow grease now and then to keep it looking business-like, too.

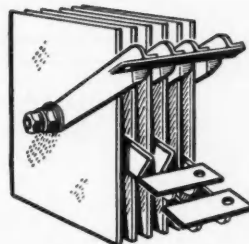
Well, so long 'til next month, and in the meantime, keep 'em rollin' with your Marquette Hi-Rate Charger-Tester.



### GENERAL ELECTRIC

#### FAN MOTOR

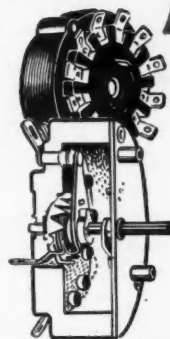
Assures dependable fan operation and saves costly repairs... sealed-in-oil for life-time service... weather-proof construction.



### Westinghouse

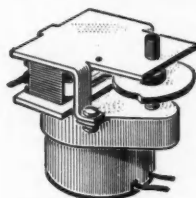
#### SELENIUM RECTIFIER

Unexcelled efficiency... rust-proof, light weight, long life. Specially prepared aluminum plates are Selenium treated.



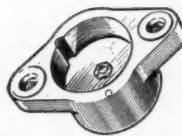
### OHMITE

Silver to silver terminal contacts... smooth, positive action... weather-proof construction.



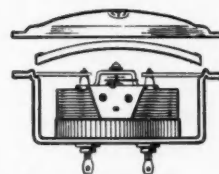
### CRAMER

Synchronous electric motor... has 'hold' position for overnight or slow charging... weather-and-dust-proof.



### KLIXON

Protects charger and batteries against reversed connections... re-sets automatically.

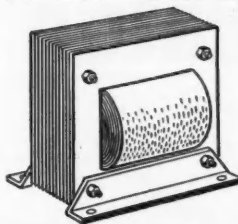


### MARION

D'Arsonval movement assures accuracy and dependability... illuminated for accurate day and night service... hermetically sealed.



MODEL 202



### MARQUETTE

Built for heavy duty... long service—permits operating from standard outlets—moisture proofed.

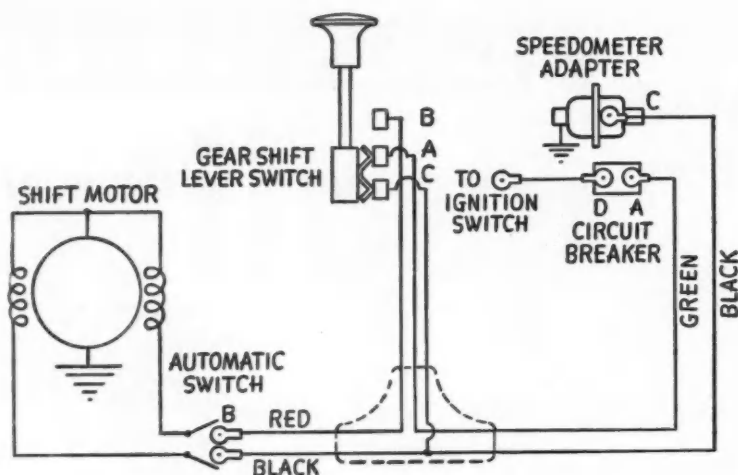
## MARQUETTE

REGISTERED U.S. PAT. OFFICE

# HI-RATE CHARGER AND TESTER

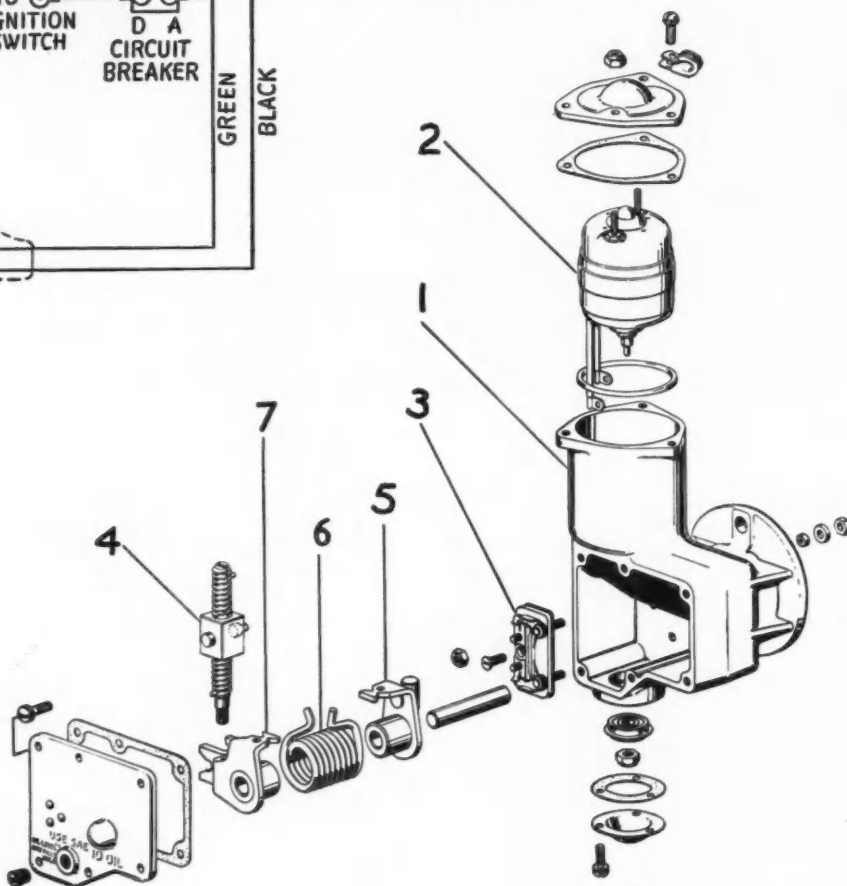
Get it from your jobber!

MARQUETTE MANUFACTURING CO., INC.  
307 E. Hennepin Avenue Minneapolis 14, Minn.



Wiring diagram of the electric shift control units, showing location of terminals for test lamp check

Test light will show any defects in wiring harness or in the units



Below. Main parts of the axle shift unit: 1. Shift motor housing, 2. electric motor, 3. automatic switch, 4. drive screw assembly, 5. Shift fork actuating lever, 6. torsion spring, 7. spring winding lever assembly

## Trouble Shooting the

# Eaton Electric Shift

THE EATON electric shift for two-speed axles, developed some time ago and described in the September, 1949, issue of *COMMERCIAL CAR JOURNAL* has been accepted in the field as an improvement over either the manual or the hydraulic-operated mechanism. Timken Axle is also using this Eaton actuating device for its line of two-speed axles. While the electric shift is simple, reliable and long-lived, it can be expected that it will require service at certain intervals. Here are some up to date tips on maintaining the mechanism as provided by the manufacturer.

Failure to operate should call for a check first of the electrical circuit

of the switch. A handy tool for this job is a 6 or 12-volt light bulb with two suitable lengths of wires in turn connected to small battery clips. In a circuit check refer to Fig. 1 and connect the test lamp to point (d) on the circuit breaker under the dash or hood. Connect the other wire from the test lamp to a ground. Turn on the ignition switch and the light should show. If it fails to light at this point, a poor connection or broken circuit between switch and circuit breaker is indicated.

Next connect test lamp to point (a) on the circuit breaker. If the lamp does not light, listen to the circuit breaker to see if it is operating.

The lamp should stay on continuously at this point. If it flashes off and on, or if the circuit breaker is heard clicking, it indicates that too much current is flowing and the circuit breaker is opening. This is due either to a short circuit, or a stuck motor in the shift switch. To determine which it is, remove the two wires (b) and (c) from the axle shift unit and recheck. If the light still flashes off and on or the circuit breaker is heard, it is due to a short in the harness, but if the light now stays on continuously, the trouble is in the shift unit itself.

If there is no light at this point and the circuit breaker can be heard (TURN TO PAGE 164, PLEASE)



## INTRODUCING . . .

...SELBY GREER, new Western division manager for the Van Norman Co., Springfield, Mass.

...M. D. MADORA, appointed assistant manager of the commercial car and truck department of the Chevrolet Motor Div. of General Motors Corp.



... Right. SAM C. MITCHELL, zone truck manager of the Los Angeles, San Francisco and Portland regions for the Dodge Div., Chrysler Corp. Left. LEO C. SHERRY, regional truck manager of the Portland region.

...HOWARD J. HOPKINS, jobber division sales manager of Purolator Products, Inc., Rahway, N. J., recently marked his 25th anniversary with Purolator.

...Three new truck representatives of The Studebaker Corp., HERMAN DORN, who has been assigned to Studebaker regional headquarters in Chicago; J. E. COLOVIN, the South Bend region; and R. H. MCCOLLEY, whose base is the company's regional office in Atlanta.

...R. P. ENINGER, formerly domestic sales manager, appointed to the post of manager of the Air Compressor Div. of Wayne Pump Co., Fort Wayne, Ind. M. R. BARNTHOUSE succeeds Mr. Eninger with the title of assistant sales manager. District sales managers on the West Coast, H. C. ILLO at Los Angeles, W. F. ALBRIGHT at San Francisco, and C. L. SUMMERS at Seattle.

...J. A. TOMPKINS, JR., appointed general sales manager of the York Electric & Machine Co., York, Pa. Mr. Tompkins was formerly assistant sales manager for the American Hammered Piston Ring Co.

...EDWARD B. MARTIN, appointed district sales representative for the Auto-Lite Battery Corp. in the metropolitan district of New York. Mr. Martin replaces ROBERT PRICE, who was recently promoted to the post of assistant Eastern div. manager for Auto-Lite Battery Corp. CHARLES R. EASON, named as district representative in the Oklahoma City district.



...W. A. BURNS, JR., of Chicago, appointed vice president and sales manager of the Trailmobile Co.

...A. S. JOHNSON, general manager of the National Carbon Div. of Union Carbide and Carbon Corps.

...CECIL J. GOODBRAKE, factory sales representative for Federal Motor Truck Co. in the St. Louis region.

## ECHLIN HEAVY DUTY

# Ignition Contacts

## FOR HEAVY DUTY FLEET SERVICE



Careful and exhaustive tests have been made to determine for you which Trucks and Cars in Fleet operations should be equipped with HEAVY DUTY Contacts. ECHLIN has the answer and the precision-built Contact replacements to give you extra performance and extra contact life. Ask for the facts and get your copy of the new 1950 ECHLIN Truck & Bus Electrical Parts catalog.

### EXTRA TUNGSTEN LIFE



Mirror-finish Tungsten retards collection of dirt... guards against arcing, pitting and oxidation.

### EXTRA CONDUCTIVITY



Assured by copper Conductor Strip, standard on EVERY ECHLIN Contact.

### EXTRA SPRING LIFE



Full-floating Spring reduces breakage and bushing wear... insures perfect alignment.

### EXTRA PRECISION



ECHLIN tolerances are the closest known to the industry... ECHLIN precision a famous EXTRA!



# ECHLIN

# Ignition

ECHLIN MANUFACTURING COMPANY  
234 EAST STREET • NEW HAVEN 5, CONN.



CONTACTS  
COILS • CONDENSERS  
& OTHER AUTOMOTIVE  
ELECTRICAL PARTS



# Truck Specifications

## Showing New Models and Revisions Since Last Issue

The specifications of new truck models and revisions in current models noted below have been received from truck manufacturers since publication of the Commercial Car

Journal Truck Specifications Table in the August 1950 issue. Readers are requested to make note of these changes. The complete table will be included in the October issue.

### DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY COMMERCIAL CAR JOURNAL

#### Chevrolet

The chassis weight specifications on Models HR, TJ, TWS, and TW have been decreased by 10 lb.

#### Reo

The Clark 205V transmission is now standard on Model E-22S series, which include E-22SA, E-22ST, E-22SB, E-22SC and E-22SL.

#### Studebaker

Three new models, the 2R6, 2R11 and 2R14-21 have been added to the Studebaker line. Their gvw ratings are 4,600, 6,100 and 7,800 lb. They are all powered by Studebaker's own 6R engine which develops 102 bhp at 3200 r.p.m. The bore and stroke is 3 5/16 and 4 3/4 in. respectively.

#### Marmon Herrington

The Gear Ratio Range in High is 5.83 for Model R4-4.

See August Issue, Page 81 for Specifications of Other Models

## Introducing...

Continued from Page 89

...W. E. SIMMS, appointed assistant manager of fleet sales in the general sales offices at Dearborn of the Ford Div., Ford Motor Co. JAMES J. LARKIN and JOHN W. CHENAULT, also appointed as assistant managers of fleet sales to serve in the field. Mr. Larkin is stationed at Chester, Pa., and Chenault at Detroit.



...VAL C. KLOEPER, appointed sales representative for the Timkin-Detroit Axle Co.

...WILLIAM B. HUNT, eastern sales manager of Wix Accessories Corp. of Gastonia, N. C.

...DANIEL M. SHARPE, named assistant sales manager of Auto-Lite Battery Corp., with headquarters in Toledo. M. J. BARBER has been promoted to the post of manager of the Atlanta Div. and T. M. BIRMINGHAM as division manager in the Chicago office. Mr. Birmingham replaces D. M. SHARPE, who has been named assistant to W. E. BLANK, sales manager in Toledo.

...JAMES D. ABELES, formerly assistant to the president, named vice president and general manager of Purolator Products, Inc., Rahway, N. J.

...GEORGE MERCER III, transferred from his capacity as sales representative of Great Dane Trailer Co., Atlanta, to the factory main office of Great Dane Trailers, Savannah, Ga., to head-up market research.

...CHARLES D. ALLEN of the Autocar Co., transferred from the managership of the company's Boston district to a similar post in Philadelphia.

The Boston and Providence districts have been merged and JACK S. CRUSOE, manager at Providence, has been placed in charge.

...C. ELMER GISHEL, appointed sales promotion manager for Heli-Coil Corp., Long Island City, N. Y.

...WILLIAM F. PENROSE and ROLAND H. LOOG, two new members to the home-office administrative staff of the Thermoid Co., Trenton, N. J. Both men will assist Thermoid's automotive manager, GEORGE S. LAMSON.

...T. G. SHEDORE, manager of the Utility Department of the Four Wheel Drive Auto Co.

...MEREDITH (TED) LITTLEFIELD, appointed manager of the western sales region of Ethyl Corp. He succeeds SANFORD M. WAGNER who had been elected vice president in charge of sales.

...C. F. DICK, who has been sales representative in southern California and Ariz., as Western Sales Manager of the Coach Div., of GMC Truck and Coach Div., succeeding E. D. Rutherford who retired July 1.

...JAMES A. DRIESSEN, treasurer and assistant general manager of the Four Wheel Drive Auto Co., elected a member of the board of directors of the company.



...F. M. HAWLEY, president and general manager of Morse Chain Co., a division of Borg-Warner Corp., who recently announced the appointment of J. NALL CANDLER as his administrative assistant.

...GORDON A. WELLER, NICHOLAS P. MILLER and HANS S. SIVERTS, newly appointed manager of replacement sales, assistant manager of replacement sales and chief service engineer respectively for the American Brakeblok Div. of American Brake Shoe Co.

...W. H. SCHNEIDER, elected vice president-comptroller of Mack Trucks, Inc. Mr. Schneider succeeds J. E. SAVACOOOL, who is retiring. Mr. Schneider was also elected a member of the board of directors.

(TURN TO PAGE 170, PLEASE)

# "I Saw Motor Truck History in the Making" ...

*Says*  
**Lowell Thomas,**

Famous Newscaster,  
Writer and Explorer.



● "It has been an unforgettable experience to see the new Federal *Style LINER* Trucks grow up from drawing board to master payload haulers of the highway. There is no question but what it is a big step forward in the progress of truck design and truck transportation," says Lowell Thomas in his new booklet, "I Saw Motor Truck History in the Making." Read about the more than a hundred features built into the new, sensational Federal *Style LINER*, to make it today's biggest truck value.

Send for your free copy. You will agree it is the greatest advancement in motor truck design in over 25 years. See your Federal dealer for details.

FEDERAL MOTOR TRUCK COMPANY, DETROIT 9, MICH., U. S. A.



## THE ALL-NEW **FEDERAL** *Style LINER*

GIVES YOU OVER  
100 NEW AND IMPROVED ALL-TRUCK FEATURES

- ★ **New Beauty**—new design—new styling. It is the most beautiful truck in America.
- ★ **New Performance**—powerful engines with plenty of torque for husky hauling jobs and long, economical mileage.
- ★ **New Comfort**, roomier cab—big, wide, comfortable seats—easier steering—cab double-insulated with air conditioning available for all-weather driving.
- ★ **30% Greater Strength**—from the extra large, heavy duty frame to the sturdily constructed safety cab, the Federal *Style LINER* is built to "take it."
- ★ **60% Greater Visibility**—big, full vision windshield.
- ★ **100% Greater Accessibility**—the new and exclusive Swing-Lift Fenders have made a big hit with mechanics. Open a small catch and the front fenders can be lifted up, making engine, steering, accessories, brakes, etc. readily accessible.

### WRITE FOR FREE COPY

Be sure to write for a copy of "I Saw Motor Truck History in the Making." It will convince you your next truck should be a Federal *Style LINER*.

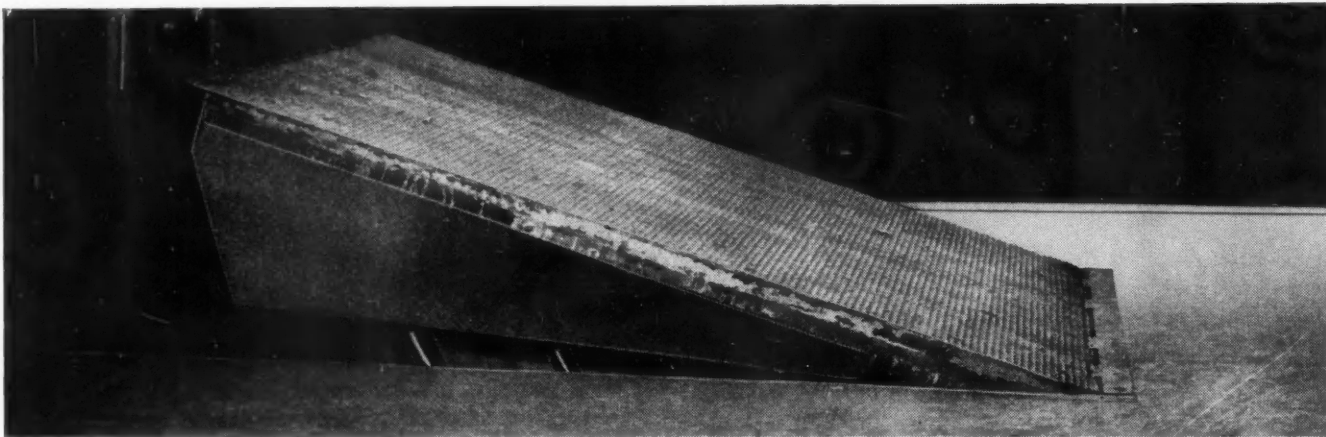


# FEDERAL



# TRUCKS

A FEW DEALER TERRITORIES STILL AVAILABLE. DETAILS UPON REQUEST.



*Ramp has a traveling range of 40 in. above and 18 in. below loading dock. A ½-hp motor supplies power to two hydraulic rams so synchronized as to compensate for offcenter loads*

## Hydraulic Loading Ramps Cut Labor Costs by 15%

**Navy improves dock appearance, cuts accidents,  
speeds loading operations with adjustable ramps**

**V** AUTOMATIC adjustable loading ramps may save you up to 15 per cent of your labor costs in loading vehicles too. The installation has done just that for the cold storage plant of the Naval Supply Center at Norfolk, Va. In addition it has been found that the usual safety hazards created by the use of steel shoes (pieces of sheet metal used as ramps between the warehouse loading platforms and the vans) have been eliminated and that a difficult housekeeping problem has been solved.

Here's the way the Navy did it:

Naval Supply Center planners were challenged with the problem of installing ramps which would be applicable to loading and unloading refrigerator cars, vans and trucks. (Sheet metal shoes were eating into loading time when they had to be wheeled to the platform, chocked to proper height and held in position for each job). A study of the problem resulted in a hydraulic adjustable

ramp that could soon pay for itself in time and improved safety.

The two original ramps, as installed, are 6 ft wide and 9 ft long. Each is equipped with two bridge plates to provide the necessary versatility. One bridge plate is 42 in. wide and extends out 36 in., the other runs the full width of the ramp and extends 14 in. The former bridge plate is used for loading and unloading refrigerator cars while the latter is for use with trucks and vans.

For added convenience, the truck and van bridge plate is subdivided into two 14½-in. sections and one 42-in. section which permits use of the ramp with trucks and vans of varying bed widths. Since a refrigerator car door is generally not narrower than 42 in., it was not necessary to sub-divide the apron used for this work.

Each ramp has a traveling range of 40 in. above and 18 in. below the plane of a loading dock. This move-



*Pit view of the hydraulic ramp showing supporting cylinders, bridge plate, space requirement*



*The adjustable ramp as designed for the Naval Supply Center, Norfolk. Use of such ramps has eliminated use of "metal shoes," expedited the loading and unloading of vans and rail cars*

ment is achieved through the use of a ½ hp electric motor applied to two hydraulic rams so synchronized as to compensate for off-center loads. A small hydraulic ram is also employed to raise and lower the large

(TURN TO PAGE 124, PLEASE)



# Bendix Products Division

CREATIVE ENGINEERING

GEARED TO QUANTITY PRODUCTION

## 75 MILLION BRAKES

PRODUCED FOR THE  
AUTOMOTIVE INDUSTRY

Producing 75 million brakes is a remarkable accomplishment even in these days of large numbers and mass production methods. This remarkable record is made possible because Bendix Products Division has such things as —

**A quarter century of specialized experience**

**Recognized engineering excellence**

**Research that has set the pace  
in design development**

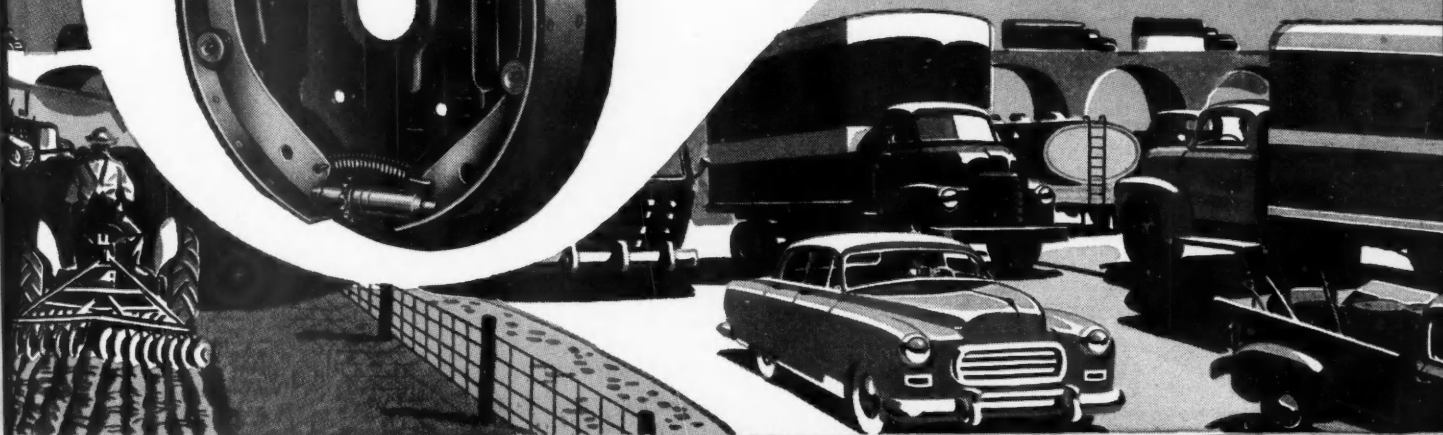
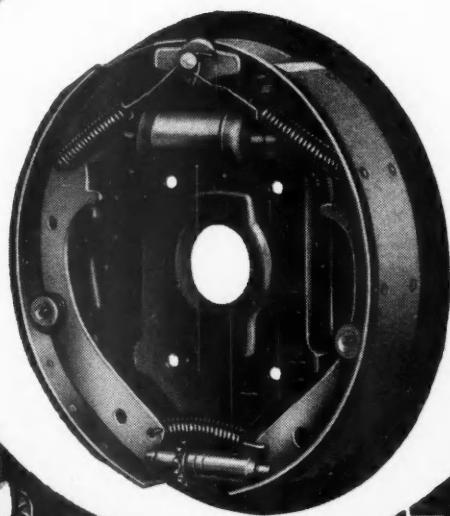
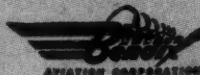
**Proved manufacturing skill and capacity**

**Overwhelming endorsement of the  
automotive industry**

Manufacturers who put their braking problems up to Bendix — regardless of the type of vehicle — soon see what this matchless experience in the fields of creative engineering and quantity production can do.

**BENDIX • PRODUCTS DIVISION • SOUTH BEND**

Export Sales: Bendix International Division, 72 Fifth Ave., New York 11, N.Y. • Canadian Sales: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario, Canada



Bendix  
Emergency  
and Parking Brake



B-K® Power Braking  
System for Cargo Trailers

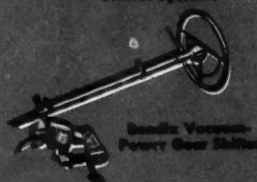


Bendix Hydraulic  
Power Steering

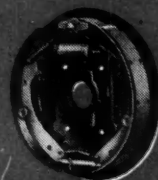
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OF THE BASICS  
OF BETTER  
MOTOR VEHICLES



Bendix® Automatic  
Clutch and Gear Shift  
Control Systems



Bendix Vacuum-  
Power Gear Shifter



Bendix® Brakes for  
Buses, Trucks, and  
Passenger Cars

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# New Truck Registrations by Makes by States\*

STATE		Auto-car	Brook-way	Chevrolet	Diamond T	Divco	Dodge	Federal	Ford	FWD	GMC	International	Kenworth	Mack	Pontiac	Reo	Sterling	Studebaker	White	Willys	All Others	Total
Alabama	June			945	2		125		727		170	160		13				85	13	51	1	2,292
	6 Mos.	2		4408	10	13	759	4	3796		1019	762		89	10	11		547	112	231	6	11,777
Arizona	June			223	2	1	33		171		53	23		2	1	2	1	40	3	32		587
	6 Mos.			1067	5	6	213		925		289	202	6	9	2	5	1	170	14	115	9	3,069
Arkansas	June			280	4		165	1	207		69	55		5	5	5		27		23	1	845
	6 Mos.			4010	13	2	947	2	3045		966	691		23	17	13		602		221	2	10,554
California	June	10		1996	23	34	319		1223	11	461	305	29	28	5	9	5	215	33	100	23	4,799
	6 Mos.	50		11440	134	216	1717	14	7947	16	2591	1820	88	120	32	51	47	1416	152	493	125	28,469
Colorado	June			596	4		97		398		136	118		1	4	2		64		53	4	1,455
	6 Mos.			2932	22	25	410	5	1841	3	552	574	5	12	4	14		380	18	228	21	7,024
Connecticut	June	2	5	328	6	12	89	4	242		77	83		12	3	8		42	15	26		956
	6 Mos.	22	32	1341	45	56	308	30	1208	2	340	366		94	15	17	9	170	68	100	15	4,239
Delaware	June	4	1	98			23		81		108	143		5	6	3		56	18	16	7	1,506
	6 Mos.	8	7	537	2	3	94		48		11	13		5	2	3		4	2	2	2	223
District of Col.	June	1		116			12		363		116	119		24	8	8		18	8	23	4	1,381
	6 Mos.	8	1	638	14	35	92	5	651		102	98		16	3	4		84	15	89	7	1,827
Florida	June			3672	56	34	917	9	3484		641	708		158	16	39		706	81	398	24	10,946
	6 Mos.	2		1276	4	3	188		1108		201	191		16	1	4		127	21	24	2	3,169
Georgia	June		1	535	35	19	1445	4	5873	1	1297	1363		115	12	58		940	153	274	12	17,642
	6 Mos.	1	1	263	3		21		147		91	64	7	1	2	5		34	4	50		692
Idaho	June			1244	21		196	5	832	2	395	364		12	4	16		205	17	179	14	3,541
	6 Mos.	11		1765	52	11	231	1	1127		291	424		24	7	20		154	51	61	7	4,237
Illinois	June	47	3	8262	243	82	1834	12	6212	5	1622	2763		134	41	73	2	924	283	289	35	22,886
	6 Mos.	1		553	11	9	110	4	418		93	192		3	3	4		97	25	31	1	1,555
Indiana	June		5	4035	49	30	804	11	3655	2	782	1472		41	20	38		738	160	175	30	12,047
	6 Mos.	5	2	898	15	5	136		766		130	202		6	2	5		83	17	31	2	2,318
Iowa	June			5317	72	31	857	1	3951		692	1600		42	15	28		5	71	131	9	13,332
	6 Mos.	1		837	5	2	77	2	617		133	222		1	3	4		64	7	24	1	1,998
Kansas	June			3839	31	15	498	3	2764		783	1122		1	20	27		353	38	119	5	9,598
	6 Mos.			766	6	3	103		514		162	180		3	5			55	6	81		1,887
Kentucky	June	2		4685	51	26	682	10	3378		1207	1033		19	22	15		441	53	372	5	12,002
	6 Mos.	3		734	1		91		619		157	108		2				89	7	47	1	1,859
Louisiana	June			3518	26	4	674	3	3330	1	998	108		15	12	9		595	38	186	14	10,107
	6 Mos.	3		216			43	5	130		64	94		7	2	1		24	3	26	1	622
Maine	June		3	1423	4	4	305	7	839		443	484		50	14	8		192	20	125	5	3,942
	6 Mos.	2	8	418	7	4	87		316		65	126		9				29	9	10		1,103
Maryland	June	9	47	2193	31	33	516	36	1682	1	383	510		94	7	31		177	88	63	10	5,911
	6 Mos.	34	12	537	20	18	163	5	423		127	162		48	10	11	7	90	44	27		1,738
Massachusetts	June	118	61	2657	87	91	816	17	2162		590	785		203	44	45	38	402	182	117	7	8,420
	6 Mos.			1531	7	22	367	2	1263		265	244		37	3	29		89	26	41	4	3,930
Michigan	June		1	7915	61	116	1334	66	7056	1	1351	1324		116	10	123		522	137	155	21	20,320
	6 Mos.	11		800	17	11	113		625		134	265	12	30	5	1		119	14	30	2	2,179
Minnesota	June		2	4422	59	34	761	11	3538	10	729	1542	18	55	21	17		812	65	123	30	12,249
	6 Mos.	1		785			110		506		198	113		3	1			79	4	26		1,824
Mississippi	June			3728	8		644	4	2774		1093	649		19	14	9		503	30	142	7	9,625
	6 Mos.	1		1403	2	1	182		868	1	297	268		7	5	5		128	26	43	1	3,208
Missouri	June		5	6454	29	44	1095	2	4153	2	1379	1291	3	75	14	37		669	140	178	30	15,600
	6 Mos.			324	5		33	3	190		51	85		1		2		36		64		794
Montana	June			1341	21		267	8	845	1	252	470	13	4	4	15		196	7	295	1	3,740
	6 Mos.			703	16		75	1	506		133	185	7	4	5	1		55	18	57	1	1,767
Nebraska	June			3072	89	6	411	2	2413	7	573	921	11	12	10	16		343	49	219	13	8,167
	6 Mos.			57	1		10		36		35	9						14	1	18		1,811
Nevada	June			291	3		36		195		118	52						46	1	48		792
	6 Mos.			70	1		26		66		28	29		3		5		8	2	12		253
New Hampshire	June		7	608	10	5	264	3	489		189	234		52	4	17		94	12	57	1	2,055
	6 Mos.	11		713	22	16	169	2	524		178	210		35	6	8	3	61	36	57		2,088
New Jersey	June	22	24	4129	145	123	966	42	3437	6	1105	1134		284	81	38	10	388	216	257	16	12,576
	6 Mos.	74	125	339			35		210		99	36		8	1			50	2	11		791
New Mexico	June			1682	1		254		866	2	474	216		18	1	1		274	13	96	13	3,916
	6 Mos.	14	53	1389	48	31	401	41	1001		381	417	4	75	5	19		147	74	85	21	4,202
New York	June	303	389	9053	462	192	2946	111	6162	32	2476	3154		902	69	202	27	1020	560	612	173	28,825
	6 Mos.	5		1061	1	7	135	2	756		170	163		47	2	1	1	93	28	50	28	2,550
North Carolina	June	36	4	4941	19	36	854	13	4274		831	838		287	12	11	3	594	129	168	78	13,128
	6 Mos.			261	6	1	33		197		47	130		1				41		26		743
North Dakota	June			969	11	2	740		170		170	487		6	2	1		158		111	6	2,854
	6 Mos.	16	3	1913	30	29	440	2	1355		320	498		60	6	20		188	101	63	3	5,026
Ohio	June	56	8	8789	179	164	1707	38	7274	4	1753	2720		316	87	121		861	593	306	14	24,990
	6 Mos.			986	3	8	159		732		212	187		3	6	2		102	27	31	1	2,459
Oklahoma	June			4474	9	35	821		3333	7	1069	972		30	16	30		502	108	170	9	11,586
	6 Mos.	2		374	8		62		344		134	114		14				49	6	91	9	1,214
Oregon	June			2188	52	14	428	2	1831		637	669		54		7	3	258	32	312	30	6,543
	6 Mos.	13	62	2145	42	17	427	16	1781	3	507	662		74	11	41	5	234	125	125	12	6,302
Pennsylvania	June	83	276	9836	196	69	2163	58	7603	3	2004	2810		440	90	174	20	927	517	403	49	26,741
	6 Mos.	12	1	145	3	17	35		121		25	41		10	3			26	10	34		484
Rhode Island	June			539	13	34	197	1	347	2	107	206		56	11	9		83	31	60	3	2,001
	6 Mos.	30	5	860			81		47		126	69		11	1	1		50	7	25	1	1,383
South Carolina	June			2531	4	11	453	1	1958	4	544	351		67	11	5		292	52	74	8	6,389
	6 Mos.	3		214	5		32		117		34	67						19	1	29	1	523
South Dakota	June</																					



Tomorrow's battery is here TODAY—

# it's the GREAT NEW EXIDE!

A NEW HIGH IN STARTING POWER  
LONGER LIFE THAN EVER BEFORE  
MORE BATTERY FOR YOUR MONEY

Outstanding improvements! Amazing performance! This is the result of ceaseless development by the largest research-engineering staff in the battery industry, plus 62 years of battery-making experience.

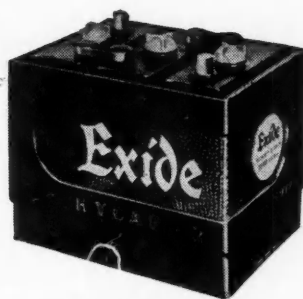
When your batteries are Exides, you can count on dependable starting, long battery life, minimum maintenance and low cost per mile of operation. Ask your Exide supplier about the new Exide.

THE ELECTRIC STORAGE BATTERY CO.

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WHEN IT'S AN

**Exide**  
YOU START

## Exide has EVERYTHING



## Fleetman's LIBRARY



*Vari-Speed*

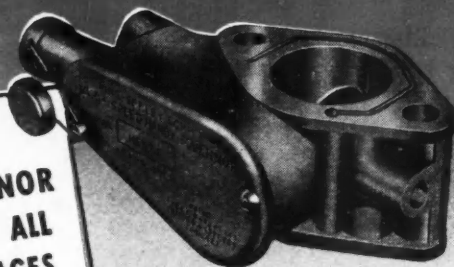
# HANDY GOVERNOR

## Characteristics and Advantages

- 1 Wide range of governed speeds without the necessity of any change in governor assembly.
- 2 Controlled light load speeds.
- 3 Sharp governor cut-off—minimum horsepower loss.
- 4 Low speed droop.
- 5 Final full load and no load factory calibration on air flow machine assures you accuracy and uniformity in production.
- 6 Simple to adjust.
- 7 Simple mechanical design—only one moving shaft.
- 8 Sturdy corrosion-free construction.
- 9 Stainless steel needle bearings that insure instant response.



**NO OTHER  
VELOCITY GOVERNOR  
CAN GIVE YOU ALL  
THESE ADVANTAGES**



**KING-SEELEY  
CORPORATION**

ANN ARBOR MICHIGAN

**PLANTS IN  
ANN ARBOR  
GRAND RAPIDS  
YPSILANTI**

A NEW SERVICEMAN'S MANUAL ON THE AUTOMOTIVE COOLING SYSTEM has just been published by the Du Pont Co. Complete with illustrations in four colors, charts and carefully organized maintenance tips the booklet shows how the cooling system works, how to select a proper coolant, how to find troubles and how to correct them. Summer and winter conditioning as well as both chemical and manual cleaning are covered in detail. Measuring 11 x 14 in. and printed on coated, grease-resistant stock, this handy manual has been especially compiled and designed for quick reference.

Probably the most important part of the booklet for the fleetman is the section on trouble shooting and repairs. By referring to a master chart, the mechanic can quickly diagnose a complaint, and then, by turning to one of eight tab-indexed sections, find a description of all of the possible causes of that trouble, arranged in the order of the frequency with which they are likely to occur. Another section of particular interest is the section on testing procedures. Here four basic tests are outlined and illustrated for the convenience of the apprentice mechanic.

While basic, the booklet does offer the advantages of clarity, thoroughness of detail and valuable illustrations that should be of aid in fleet shops in training men for this service. Price of this 41-page manual is \$2. May be obtained from jobbers carrying Du Pont Zerone and Zerex.

SELLING MOTOR TRUCK SERVICE by Carter A. Justin, is written specifically for sales managers and salesmen in the trucking industry.

This 48-page book is clearly written, concise, and practical. Mr. Justin passes on more than fifteen years of experience in selling.

Copies of the book, priced at \$1.50 are now available through the Customer Relations Council of the American Trucking Associations, Inc., Washington, D. C.

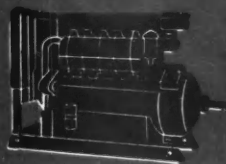
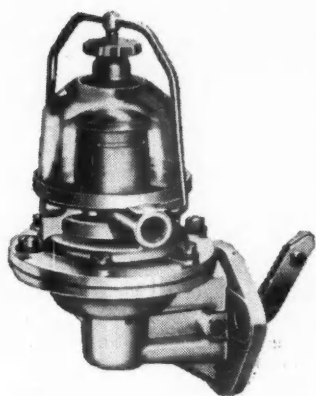
SOLUTIONS TO THE PROBLEM OF MERCHANDISE PICKUP AND DELIVERY IN BUSINESS DISTRICTS, a 23-page booklet, is the latest publication in a special series of pamphlets to assist urban businessmen in understanding and combating the increasing traffic problem.

Written in question and answer style it presents broad general solutions suggested and set forth under five headings, namely: to improved handling of goods, better utilization of truck loading space, more efficient street usage through traffic control, and load consolidation, additional off-street loading space and decentralization.

Copies at 10 cents each may be obtained directly from the Transportation and Communication Dept., Chamber of Commerce of the United States, Washington, D. C.

MOTOR OILS AND ENGINE LUBRICATION, by Carl W. Georgi, a 515-page book, describes practical problems of engine usage, maintenance and lubrication with causes and remedies affecting operating troubles.

(TURN TO PAGE 98, PLEASE)



# Quality

that pays off!

It took 23 years to make AC Fuel Pump quality what it is today—23 years of constant improvement in materials, design and manufacture.

As a result, AC Fuel Pumps are the almost unanimous choice of engineers, as well as of maintenance men whose watchwords are reliability and economy.

AC quality pays off—in the number of carefree miles you get for what you pay—in the greater revenue you get from vehicles that are reliable throughout.

With periodic inspection and cleaning—and replacement at regular intervals—your AC Fuel Pump will never let you down. That's why, after 23 years, over 40,000,000 AC Fuel Pumps are in daily use.

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION • FLINT 2, MICH.



OVER 40,000,000

IN USE TODAY

*preferred on millions of vehicles*



AC  
OIL  
FILTERS

# Fleetman's Library

Continued from Page 96

It covers methods of testing and evaluating performance characteristics of motor oils with emphasis on viscosity index. Written in practical terms, the book contains numerous illustrations especially those relating to engine wear. Price is \$8.50. Reinhold Book Div., New York, N. Y.

**AUTOMOTIVE LIGHTING**, a catalog describing a full line of directional signal, clearance, marker, rear, stop and interior lamps

in addition to reflectors, mirrors and switches can be obtained upon request to The Griffin Lamp Co., Hamilton, Ohio.

**INTERNATIONAL SCHOOLMASTER SERIES**, a 24-page booklet includes complete specifications and describes with numerous color photographs a complete line of chassis specialized for school bus operation. Write Motor Truck Div., International Harvester Co., Chicago, Ill.

**FREIGHT HANDLING SAFETY**, a new training film showing how to handle and unload freight, in story form, through a character called Happy Jack. Prices for purchase, preview or rental may be obtained on request to the National Safety Council, Chicago, Ill.

**APPRENTICESHIP PAST AND PRESENT**, a 26-page booklet, traces in detail with illustrations the training methods used by early settlers and those in vogue during subsequent periods. Copies may be obtained for 15 cents from the Superintendent of Documents, Washington, D. C.

**TIRE CHAINS**, a bulletin which lists the complete line of Cleveland T-bar master strip and sterling wearwell chains, also includes a listing of repair parts and accessories for tire chains. Sketches and photographs, and descriptive information facilitate the use of the new price sheet. Write for bulletin P-3140. The Cleveland Chain & Mfg. Co., Cleveland, Ohio.

**LAMPS, MIRRORS, SPECIALTIES**, is a catalog that presents the entire Yankee line of lamps, mirrors, and specialties in twelve pages. Each item is illustrated, and essential information about it is given in condensed form. In two colors, the text is arranged for quick reference. A separate page is devoted to a description of the various point of sale aids provided by the company. Address requests to the Yankee Metal Products Corp., Norwalk, Conn.

**ALLOY STEEL SPRINGS**, a catalog giving complete information on front springs, rear springs, U-bolts and rear spring helper sets, all on one line, is available upon request. Write Maremont Automotive Products, Inc., Chicago, Ill., or contact your maremont spring wholesaler.

**USE OF FURFURAL FOR CRANKCASE FLUSHING**, bulletin No. 124 describes furfural and outlines method of conducting tests to show its effectiveness in removing heavy deposits of sludge in engines. Send request for a copy to The Quaker Oats Co., Chicago, Ill.

**WILSON WASHER**, an 8-page bulletin describes in detail the new Wilson Moveable Van Washer. Numerous photographs show the unit in operation. Write for this bulletin No. 74 to the Ross & White Co., Chicago, Ill.

**GET THE LUBRICATION AND YOU GET THE SERVICE**, a 16-mm sound film dealing with automotive lubrication is available through Kendall distributors or by writing to the Kendall Refining Co., Bradford, Pa.

**INDUSTRIAL APRONS**, a 4-page catalog section describing the lines of industrial aprons may be obtained upon request to the B. F. Goodrich Co., Akron, Ohio.

**SAFETYGRAPH ON FALLS**, a visual aid for training small groups, consists of 12 spiral-bound pages inserted in a leatherette portfolio. When set on a flat surface, it opens to form an easel. Included are colorful cartoons, duo-tone photographs and a safety talk for the instructor. Prices may be obtained on request to the National Safety Council, Chicago, Ill.



**"Quality Control"** is the means by which TUNG-SOL Auto Lamps are rigidly held to highest standards. It is the reason why the enormous volume of TUNG-SOL Lamps required by automobile manufacturers and the replacement trade is so uniform and dependable year after year.

Quality Control is an independent inspection unit operating within the TUNG-SOL organization. It examines and tests continuously all along the line of manufacture. It has the authority to reject one lamp, or a day's production should they fail to measure up to specifications.

This rigid self-discipline is to our customers' benefit, therefore to our advantage. It serves to make the trademark TUNG-SOL a symbol of quality in miniature lamps and all glass sealed beam headlights.

**TUNG-SOL LAMP WORKS INC., Newark 4, N. J.** SALES OFFICES: ATLANTA CHICAGO • DALLAS • DENVER • DETROIT • LOS ANGELES • NEWARK • PHILADELPHIA

## TUNG-SOL AUTO LAMPS

ALSO SIGNAL FLASHERS AND ELECTRON TUBES



If a motor's worth a pull-down

...it deserves pistons of  
**ALCOA LO-EX!**

FULL COMPRESSION!

NO HOT SPOTS!

EASY ON GAS AND OIL!



Make every engine overhaul *last!* You'll keep 'em out of the shop and on the road when you repower with aluminum pistons marked ALCOA Lo-Ex.

This familiar trademark is your guide to tough, heat-treated aluminum pistons, made of low-expansion alloy. You'll get full compression, with a close piston fit at all running temperatures. Cool, quiet power, because ALCOA Lo-Ex dissipates heat fast. No thinned-out lubricants!

For a sound investment in revenue mileage, insist on replacement pistons of ALCOA Lo-Ex, cast by Alcoa, finished by famous piston makers. ALUMINUM COMPANY OF AMERICA, 1847J Gulf Building, Pittsburgh 19, Pennsylvania.



Aluminum Pistons of **ALCOA LO-EX**

**V** HAVE YOU thrown away \$500 worth of free publicity lately?

Perhaps you did but didn't know it! In fifteen minutes of rapid reading, this article tells how to tap the gold vein of free publicity that runs through your business.

Most newspapers have an insatiable thirst for more local news, particularly feature stories. The chances are that without you or them realizing it, you and your drivers are sitting on an unending supply of legitimate news stories.

Every time you get your company's name in the news columns of your daily paper, it's worth money to you. It's a type of advertising you can't buy. Repetition of your firm's name again and

## Available Free

**Business promoted and public kept aware of your good deeds**

again brings more business. Through good news stories, you can secure that repetition with little effort.

City editors everywhere literally scream for humorous or tearful feature stories about everyday folks, babies or animals. Conversationally, these are the little things that draw a chuckle or a "too bad" over a cup of coffee. Written in news form by an expert, they draw even more comment. But reporters are so busy covering governmental and police news, they seldom have time to hunt for such stories.

On the other hand your drivers hear or see dozens of them every week. Your job is to train the drivers to report them to you or for you to the newspaper.

How can you tell what the editors want? Easy! Just ask them. Or better still, break the ice with a story you know they want and then follow up and ask for a little list of guide rules. One trucker in Michigan City, Ind., did this with a little yarn about a housewife who found double yokes in every egg of a dozen she had purchased. The story was front page news, not only in Michigan City, but in Indianapolis and South Bend papers, too.

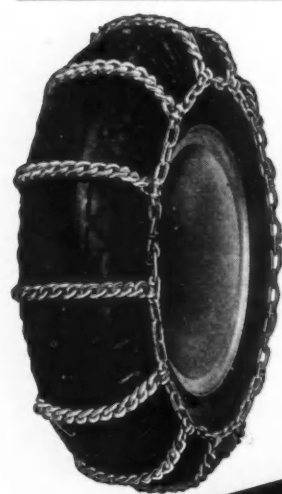
Had that driver not called, the story would have been unknown.

### Reporting Rules

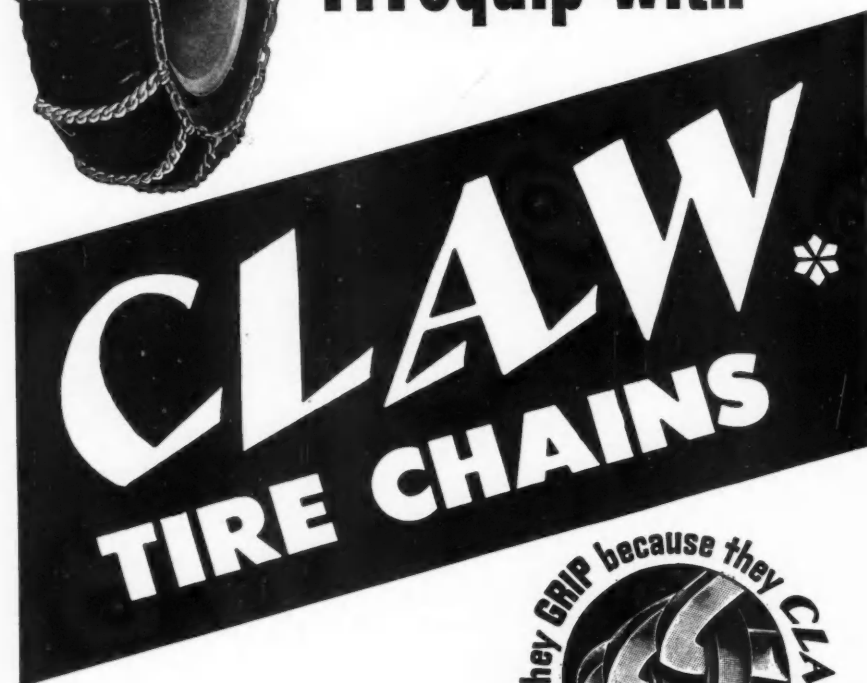
**I**N WRITING a story reporters follow a simple set of rules. All they do is answer six questions: WHO did WHAT, WHEN, WHERE, WHY and HOW? In gathering dope to give a reporter, just get enough to answer these questions.

Once you know what editors want, train your drivers to be on the alert for such material. They'll cooperate because it means getting their names in the paper, will help increase the firm's business and because just about everyone has a secret yearning to be a reporter.

Besides human interest stories, frequently you may have dozens of legitimate "straight" news stories hanging around. If you're building an addition to your garage or a loading dock or adding new trailers, let the paper know all the details as soon as you make your decision. Don't wait until it's common knowledge by "word-of-mouth."



**For Winter  
Weather Traction  
...equip with**



The cost of a set of CLAW chains isn't a drop in the bucket compared to the value of a car or truck, their loads, or your operating schedules. Keep 'em rolling surely and safely. Buy CLAW chains...the "traction insurance" used by the biggest operators.



**COLUMBUS McKINNON**  
*Chain* **CORPORATION**

General Offices and Factories: Tonawanda, N. Y.

Plants at Angola, N. Y.; St. Catharines, Ont., Can.; Vereeniging, So. Africa

# Publicity Pays

through legitimate news stories reported to the local newspapers

When you hire a new office manager, telephone that city editor. It's worth a paragraph or two to him and it gets your name in the news column.

Maybe you're planning a party for your employees. Don't hesitate to let the society editor know all about it. Smaller papers will take a full list of names while it may only rate a paragraph in a bigger city but in either case it gets your company's name in print.

Some businessmen are shy about making comments on business trends. Reporters may call to ask what the recent gasoline tax increase means to you or what you think about it. Don't turn them down. They know news and they believe your opinion is news or they wouldn't bother you. Give them an answer.

Don't be afraid to let the editor know when you're trying something new. Maybe you're having a two-way radio system installed between all your vehicles and your main office. Every editor would be eager for such a story and might even send a photographer along.

In this case, too, there may be a reporter who writes trade journal articles as a sideline. He will be delighted with the chance to do the story for the paper and perhaps sell it again to a trade publication. For you it means a dual shot of free publicity.

If you conduct a safety contest among your drivers, let the paper know the results. When you make awards to best drivers or for long service, call that editor and let him know.

Christmas bonuses, especially the size of them, are news particularly in small towns, no matter how painful it may be to have your soul bared. And the news gets around anyway.

## Union as News Source

**DON'T** be afraid to let the paper know of union activity. When you open negotiations with your union on a new contract, tell the editor about it. Do the same when the contract is signed and tell him the terms. If you have a strike, call the editor the moment you know about it and tell him your company's side.

One reason for labor's amazing growth the past few years has been

the tremendous public relations campaign waged by smart union leaders. In dozens of instances, labor has secured public sympathy immediately in a strike by getting its story in print

while management was still trying to agree on "newspaper policy."

Usually we remember first impressions. They stand out more than everything else we see, hear or read. That's especially true with the average reader in strike situations. So get your story before the public first or at least together with that of your union. Don't be "scooped!"

An AFL Teamsters business agent at New Buffalo, Mich., was "sitting" on a story he didn't know he had. All truck drivers who belonged to the

(TURN TO PAGE 102, PLEASE)

## THE BIEDERMAN TRUCK



**An All-Star Truck  
Constructed of All-Star Units  
Doing an All-Star Job Since 1920**

**DEALERS:** Compare the Biederman National Standard Model with any truck on the market and you will agree that it is an All-Star team in itself.

Only the most sturdily constructed units of America's leading manufacturers are built into it.

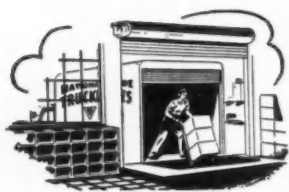
Biederman Trucks win by performance. Inquiries regarding dealership solicited.

WRITE, WIRE or PHONE

**BIEDERMAN MOTORS CORPORATION  
CINCINNATI 14, OHIO**



High Efficiency! Doors coil overhead, clear the entire opening.



Extra Space! All floor, wall, and ceiling space is always fully usable.

Convenience! Smooth, easy, upward action saves time and labor.

Do  
YOUR  
Doors  
Give  
You  
These  
KINNEAR  
Values  
?

Safe from Damage. Open out of the way, safe from wind or vehicles!

Extra Protection. All-metal curtain repels fire, theft, and wind.

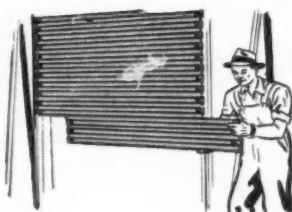
Extra Durability. Strong resilient curtain withstands more punishment.



Longer-lasting! Many doors in steady service 40 years or more.



Low-Cost Repairs. Slats individually replaced if damaged.



Any Size! Each door built to meet individual requirements.

Kinnear Rolling Doors are easily equipped with Kinnear Motor Operators for highest convenience and efficiency. Pushbutton controls can be provided at any number of convenient points—a feature that not only saves manpower but also reduces heating and air-conditioning costs by encouraging prompt door closure. Every door is specially fitted to the individual opening. Easily installed in new or old buildings. Write for details and estimate on your door requirements.

#### THE KINNEAR MANUFACTURING CO.

Factories: 2100-20 Fields Ave., Columbus 16, Ohio  
1742 Yosemite Ave., San Francisco 24, California

Offices and Agents in All Principal Cities

Saving Ways in Doorways

**KINNEAR**  
ROLLING DOORS

## Available Publicity

Continued from Page 101

agent's local, were having their blood typed and indexed. The list was to be made available to hospitals and doctors. Whenever a donor was needed free of charge, the union would supply it. This humanitarian project wouldn't have received the praise it merited had not an alert trucker tipped off an editor. The result was a full-column story.

You can build up your editor's good will toward you by helping him even when your company is not involved. "Spot" news stories are those about events which happen today and will be stale tomorrow. Those are stories of crime, accidents and other types of violence. Nine times out of ten an editor knows about such stories before you do but good editors will not bark at you if you bother them the nine times if they get a story they wouldn't have had on the tenth try.

In conclusion, there are three major points to keep in mind about news stories:

1. If you prepare an article and take it to the paper don't be surprised if it is rewritten, and probably in shorter form than you wrote it. Editors and reporters spend years learning their trade. They don't tell you how to do your job and they expect you to realize they know theirs.

2. News is the world's most perishable commodity. Don't delay in getting a story to the paper. If an event happened today the editor is more likely to use it if you tell him in time for today's paper. Tomorrow it may be too late.

3. When furnishing information for a story, keep in mind journalism's cardinal rules regarding a news story. It must tell who, what, where, when, why and how. Anything less than this is incomplete unless you cannot possibly obtain it.

Follow these suggestions and you will build up good relations with your editor. He will recognize you and your men as invaluable news sources and will respond by using your company's name whenever possible.

Don't throw away hundreds of dollars worth of free publicity.

END

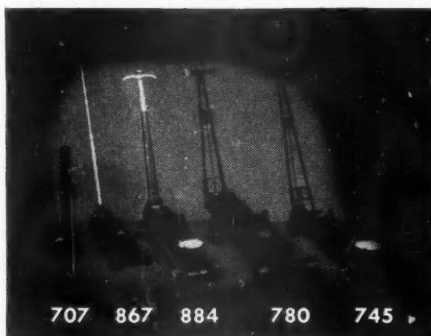
### Modified T-6427

Continental soon will announce mechanical changes in its model T-6427 427-cu. in truck engine currently being used by Reo, Federal, Diamond T and others in certain models. Installation of valve rotators, a different type valve lifter, and changes of the cam contour are expected to give an increase of about 20 per cent in hp.

# THE \$ PROFIT TEST \$ ?



**GET YOUR LIFTING EQUIPMENT OUT OF THE RED  
with Walker...the complete line**



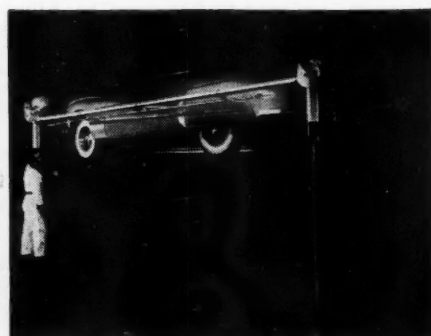
## WALKER SERVICE JACKS

No. 707—Blue Boy II—the new all-purpose utility Lift-A-Car—2 tons capacity • No. 867—New deluxe Whippet, greatest jack value in the quick-service class. 3000 lbs. capacity • No. 884 (4 tons cap.), No. 882 (2 tons cap.)—The new deluxe Greyhounds, with the new Gold Seal Power Unit—America's finest hydraulic service jacks • No. 780—Walker, 10-ton Hydraulic Roll-A-Car • No. 745—Walker 2½-ton Mechanical Roll-A-Car—the finest mechanical service jack on the market.



## WALKER SHOP MAINTENANCE UNITS

No. 792 (5 tons cap.), No. 791 (2 tons cap.)—New improved Walker Rigid Racks—the finest of all adjustable axle supports • No. 798—The famous Walker Unit Lift—a time-saver for servicing heavy under-vehicle units. Capacity—1000 lbs. • No. 799—New deluxe Walker Steel Horses—low cost adjustable supports with new "Stabilized" Safety Base • No. 960 (30 tons cap.), No. 965 (50 tons cap.)—New "Series 900" heavy duty super-power jacks for bending, straightening, pushing.



## WALKER ELECTRIC LIFTS

Turn out more jobs with the same manpower, in the same shop, with these great new time-saving, money-making Walker Electric Lifts for mechanical and lubrication service. New positioning of the support beams increases working space by 36%. 6 extra inches of working height give greater working convenience. And from floor to car bottom your men and equipment work free from obstruction in the famous Walker Open Work Zone. Lowest installation cost of any lift on the market.

● Obsolete and worn-out jacks rob you of untold profits through their inefficiency. Broken down "klunkers" threaten life and limb. And when you don't have enough jacks, or the right kinds of jacks, it costs you far more than adequate jack equipment.

Take a look at your jacks. Jot down your needs. Then see your Walker Jobber. He has the

proper jack for every job—new deluxe Walker Jacks, engineered to meet the requirements of modern day service. If you can't buy all you need at once, start with the jack you need most. Then add the rest as you can.

And don't forget the new, improved Walker Electric Lift. It quickly pays for itself in time saved on mechanical service.



# leads in JACKS

**WALKER JACKS • ELECTRIC LIFTS • EXHAUST SILENCERS • OIL FILTERS**

# Safety Team's Coaching Cuts Accidents

Continued from Page 63

showing comparative ratings on all of its drivers; of practical value in the follow-up of individual accidents by drivers, and the corrective training and supervision of these drivers.

Third, the development of guiding standards for the testing of all new driver applicants.

Fourth, value in the maintenance of the going new company highway patrol program.

When the Cushman Department of Personnel and Safety began the setup of its revised standards for selection of new drivers, it was decided that, in certain particulars, these standards should be set higher than the old selection standards, and made even more strict than some of the ICC driver requirements. These changes toward higher starting requirements were assumed to be practicable, because the new drivers

naturally would be hired at a much lower average age. Also, the company would be hiring only experienced drivers. And the conditions of increasing hazards in highway driving, and the increasing costs of accidents, was making it necessary for the company to look for and develop better drivers.

As to particulars in these changes toward setting higher standards for the new drivers, the department hasn't made any change in reaction time requirements, since the averages shown by the old drivers also is considered satisfactory for new drivers. As related to depth perception, field of vision, glare acuity, and night vision, the averages by the old drivers is considered favorable. In field of vision, about 5 per cent of the old Cushman drivers were rated under average. These drivers were given special warning, but this fault, for the fleet as a whole, is considered a minor one.

However, as pertaining to eye dominance and visual acuity, the company now has in operation new driver selection standards which are more strict than the ICC driver requirements. The new requirement is that both eyes of the driver candidate must meet the 20-20 vision test; as compared with the ICC allowance of 20-100 test for one eye, provided the other eye meets the 20-20 requirements.

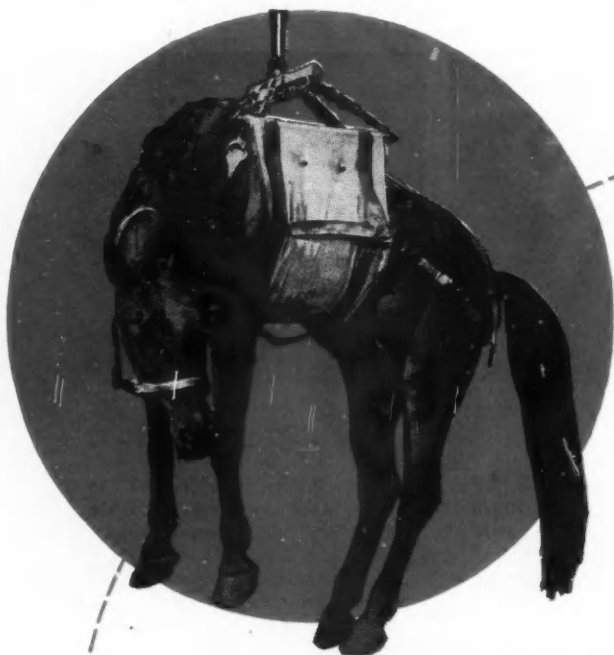
Another step-up in Cushman test requirements is that the new driver applicant must show a steadiness rating of 9, as compared with a rating of only  $7\frac{1}{2}$ , which was the average for all old drivers.

Another addition to the Cushman testing schedule for new drivers is a special grip test, which has been standardized through the driving laboratory tests by Dr. A. R. Lauer at Iowa State College; and recommended as an index to the general physical strength and fatigue stamina of an applicant driver.

No special intelligence test has yet been selected. Some of such tests now in use by the trucking industry are considered either too lengthy or not well adapted to the trucking driver group. The department assumes that the general intelligence of a driver applicant can be fairly well judged through the company indoctrination examination now in use. This is a 3-page test which requires written answers to 11 questions on safe driving practices; 15 on ICC Regulations; 4 on inspection of vehicle prior to trip; 6 on procedure in case of accident; and 4 on public and customer relations.

Also, the general intelligence and educational background of the driver applicant may be somewhat rated through his handling of a two-page standard application for employment

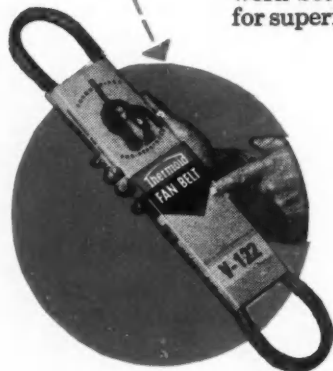
(TURN TO PAGE 108, PLEASE)



## Worth Hanging On To

Anything you can get hold of that helps cut maintenance and operating costs these days is worth hanging on to. Thermoid Pre-Stretched Fan Belts, for example. Pre-stretching prevents slipping—checks fan belt failure before it starts. To show how effectively the Thermoidized Pre-Stretching Process assures perfect fit and tension at all times, the weight of a 1500-pound horse was suspended from a Thermoid Pre-Stretched Fan Belt. The belt was then returned to service in the car from which it had been taken *and it worked perfectly at the original adjustment.* That's why Thermoid Fan Belts are a "horse of a different color"—they last longer, work better, cost less in the long run. Specify *Thermoid* for superior performance under all operating conditions.

One Line—The Top Quality Line



# Thermoid

Brake Linings • Fan Belts • Radiator Hose •  
Hydraulic Brake Parts and Fluid • Car Mats  
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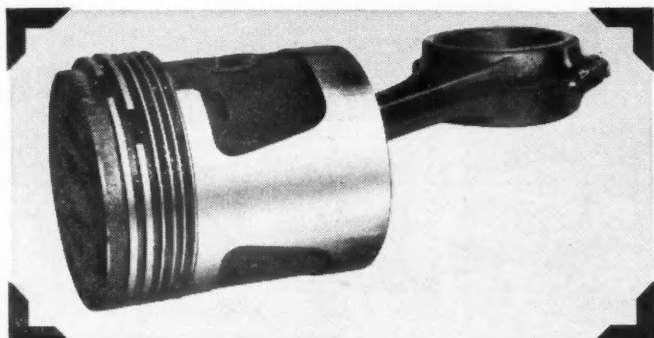
Thermoid Company • Trenton, N. J.



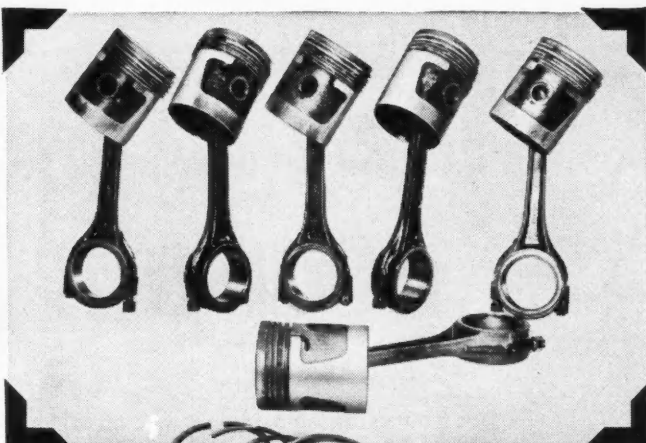
# STANDARD ENGINEER'S REPORT

DATA	
LUBRICANT	RPM DeLo Oils
UNIT	1 1/2 ton truck - 6 cyl. Ford - Model F5 engine
CONDITIONS	Low engine temperatures - City deliveries
PERIOD	2 years
FIRM	Pacific Cheese Division of Borden, San Francisco, Cal.

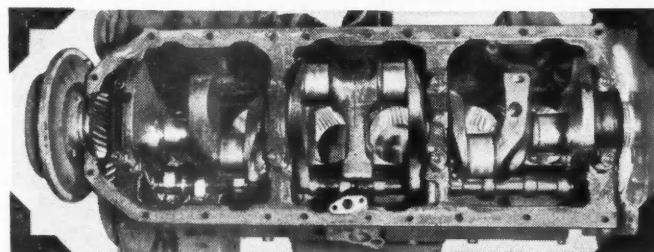
Only 0.004 inch wear in 68,740 miles stop-and-go driving!



LUBRICATED WITH RPM DELO SPECIAL OIL, these pistons from an engine overhauled for the first time after two years and nearly 70,000 miles of tough delivery-service operation, had no broken or stuck rings. Grooves were clean and all oil-return holes open. All bearings, including mains, were in good

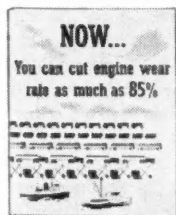


condition. Reboring of the cylinders was not necessary because none of the six cylinders was out of round and taper ran only 0.004 to 0.0045 inch.



THE ENGINE WAS EXCEPTIONALLY CLEAN as this picture indicates. Cylinder walls were free of lacquer and there were no deposits in valve chambers. Only a thin carbon film was in the bottom of the pan. Valves, pistons, bearings, all parts except rings, were put back in service.

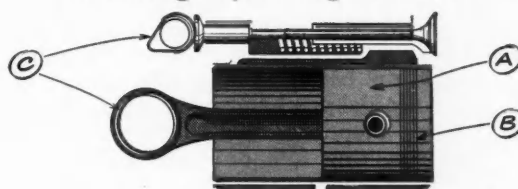
REMARKS: This engine was used in Sacramento under widely varying temperatures. Its stop and go operation seldom allowed engine temperatures to reach normal. There is an RPM DELO Lubricating Oil to meet every heavy-duty engine operating condition.



FREE BOOKLET on the RPM DELO Oils gives you complete information. Write or ask for it today.



## How RPM DELO Oils meet tough operating conditions



- Contain special additives that provide metal-adhesion qualities...keep oil on parts whether they are hot or cold, running or idle.
- Antioxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean, helps prevent scuffing.
- Special compounds stop corrosion of any bearing metal, and oil foaming in both wet and dry sump engines.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

TRADEMARK "RPM DELO" REG. U.S. PAT. OFF.

STANDARD OIL COMPANY OF CALIFORNIA • San Francisco  
THE CALIFORNIA OIL COMPANY • Barber, N.J., Chicago, New Orleans

STANDARD OIL COMPANY OF TEXAS • El Paso, Texas  
THE CALIFORNIA COMPANY • Denver, Colorado

## Coaching Cuts Accidents

Continued from Page 106

form that he will fill out. However, this form is assumed to have one special deficiency. It does not request specific information on length of time of residence of applicant at his present and previous homes; which information may be revealing as to his character stability.

The department hasn't yet selected an attitude test for use in rating of

new driver applicants; and the available older and newer tests of this type are being compared.

### Safety Dramatized

THE company makes special effort to dramatize its safety program. During the initial hiring stage, the applicant is asked to describe his most serious accident. It is emphasized that any more than two—that is, a third chargeable accident—during a 12-month period makes a driver subject to immediate dismissal.

All drivers who report at the main

Chicago terminal must go down a stairway lighted by a flashing red and green sign with a safety message that is changed each week. At the bottom of the stairway is a large display board, 8 x 10 ft., which lists all Chicago drivers. Following each name are spaces in which his safety record for the entire year will be listed. An inserted silver star means, no accident; a green star, accident, not chargeable; and a red star, accident, chargeable.

Safety also is dramatized through an annual company dinner for all drivers and their wives, during which awards are presented to all no-accident drivers.

The program also has included the setup of an accident review board; to meet every six weeks. The review board includes, as members, director of personnel, director of safety, the union steward, and two to five drivers selected by the drivers.

Another unique factor in the Cushman safety educational program for drivers, is use of the exceptional 14-year no-accident driving record earned by Chuck Zimmerman before he became Safety Director. When pressed into telling his own story, Zimmerman will frankly confess that his own safety record did not start until after he had had his one accident.

This happened during the first year that he was a Cushman driver, back in 1934. He had been hired to operate his driver-owned light tractor, which was pulling a Cushman trailer on a Chicago to Milwaukee night run.

As Zimmerman explains it, on that night he had a late start. This was before the days of ICC extra-passenger regulations, and, excepting for a last-minute home decision, his wife also would have been involved in the accident. Being late and in a hurry, Zimmerman was moving along at a fast clip when an empty truck, which Zimmerman previously had passed, now was trying to "pay back" and pass him. During this period, if Zimmerman had been practicing the principles of defensive driving, he would have slowed

(TURN TO PAGE 110, PLEASE)

## Don't change your oil!

Are you using an additive that changes your motor oil? Does it change the viscosity rating, viscosity index, detergents or other lubricating qualities built into the oil by the refiner?

If you are, then you can't expect your oil to do the lubricating job it was designed to do. That means more breakdowns, less time between overhauls, higher maintenance costs.

For most efficient engine operation, specify Miracle Power—it won't change your oil. Instead, Miracle Power helps good motor oil do a better job of lubrication, because it's all lubricant—contains only pure colloidal synthetic graphite completely suspended in fine blending oil. The synthetic graphite forms a protecting film on vital engine parts, saving them from excessive friction and wear.

Specify Miracle Power. Mix 2½ gallons of Miracle Power in a 55 gallon drum of your regular motor oil. Make any operating comparison test you wish—you'll soon find out for yourself how Miracle Power reduces maintenance expenses.



**THE AP** *Miracle Power Division*  
**PARTS CORPORATION**

AP BUILDING • TOLEDO 1, OHIO

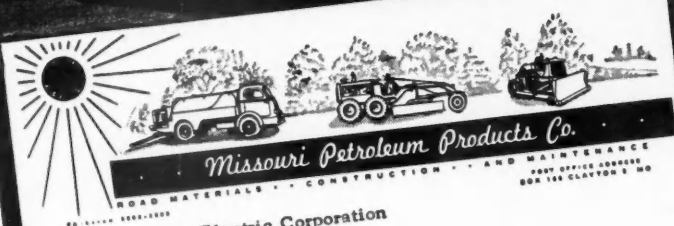
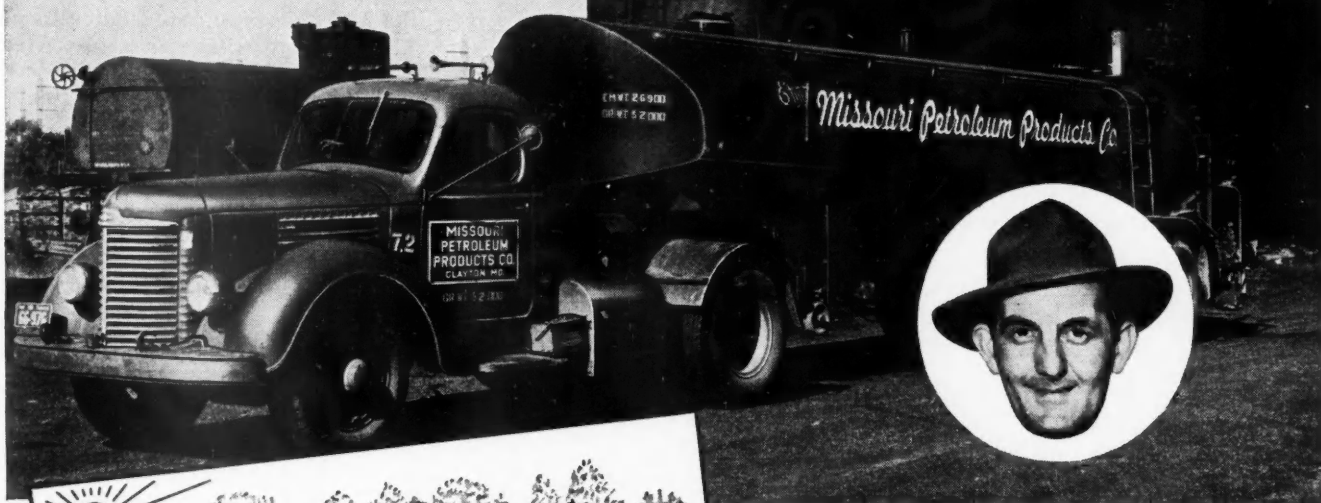
Manufacturers of: MUFFLERS • PIPES • MIRACLE POWER • 4-1-123



### Reo Does It Again

Reo has purchased machinery, fixtures and design rights of Velo King, Inc., velocipede manufacturer, of Canandaigua, N. Y. The equipment will be moved to the Reo-Lansing plant where Reo plans to manufacture tricycles and possibly other children's toys. The move is part of Reo's plan to diversify its products and take advantage of excess plant and equipment for stabilizing employment and sales. The company currently has under development a child's automobile powered by the air-cooled engine currently being manufactured for the power mower.

# OUR FLEET OF *Heavy-Duty Asphalt Haulers* REALLY GETS "A Going Over"



Wagner Electric Corporation  
6400 Plymouth Avenue  
St. Louis 14, Missouri

Gentlemen:

Our fleet of heavy-duty asphalt hauling vehicles really gets a "going over." We believe that we can safely say that our trucks receive tougher treatment than that given most vehicles in over-the-road operation. Long and heavy hauls over all types of terrain are all in a day's work. When it came to the selection of brakes all of these conditions were considered. We made the right choice when we selected Wagner Air Brakes.

These brakes are ideal for easy installation on our tandem axle units. Through the use of three Wagner Power clusters, one for each axle, the safety factor is multiplied many times. A power cluster on each axle insures safe, positive stops in event of hydraulic line breakage, which does occur occasionally due to the age, over which our units operate.

Many of the units in our fleet operate at great distance from our base and it is of particular importance that maintenance be as trouble-free as possible. We have used Wagner Air for more than seven years without a major failure, and we believe that this record is due in part to the Rotary Air Compressor used in all Wagner Air Brake Systems.

F. L. Hunter, Plant Supt.

*F. L. Hunter*

ROADSIDE ROAD AT ROCK ISLAND TRACKS,  
ST. LOUIS COUNTY, MISSOURI

## "We Made the RIGHT Choice When We Selected *Wagner Air Brakes*"

Mr. F. L. Hunter, Plant Superintendent, Missouri Petroleum Products Company, knows from experience that Wagner Air Brakes, the only air brakes with the *Rotary Air Compressor*, give his fleet top performance in heavy-duty service with minimum maintenance.

Increase your profits by cutting your brake maintenance costs . . . install Wagner Air Brakes on your trucks, tractors, trailers and buses. When ordering new equipment, specify WAGNER. Ask for Bulletin KU-50B—It gives complete information.



### Wagner Electric Corporation

6470 Plymouth Avenue, St. Louis 14, Mo., U. S. A.

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID... NoRoL... CoMoX BRAKE LINING... AIR BRAKES... TACHOGRAPHS... ELECTRIC MOTORS... TRANSFORMERS... INDUSTRIAL BRAKES



## Coaching Cuts Accidents

Continued from Page 108

his own truck to give the other driver right of way. But Zimmerman now was riled, did not slow, and, in effect, was racing him.

The other driver had enough speed to swing in ahead on Zimmerman's lane, then, recklessly, began slowing to a stop. Zimmerman now attempted to save himself by swerving to the side; but wasn't able to do so, and the front right corner of his tractor caught the

left rear corner of the other truck.

Zimmerman continued as a Cushman driver, and so well had he learned his safety lesson that there followed 14 years of no-accident driving. During this long, safe-driving period, his two basic safety rules have been: "Never be in a hurry," and "Always give the right-of-way."

### Four Major Accident Causes

**DURING** the setup of the new Cushman program in highway safety, there was a careful analysis of all previous highway accidents. The four

apparent, most important causes were: 1, Excessive speed; 2, failure in granting right-of-way; 3, trailing too close; and 4, lack of proper driver rest during time-off period.

It was assumed, of course, that all four of these driving faults and hazards were fully known to all competent highway drivers; and it had become a basic principle, under the new Cushman testing program, that only competent drivers would be employed or retained.

### The Overall Program

**MANAGEMENT** considered a number of possible driver incentives that might help to develop such driving practices. The Personnel and Safety Department decided that the one most effective factor in the overall program would have to be intensified driver supervision; to be supplemented, of course, by a good shop program of inspection procedures, mechanical adjustments, and general maintenance.

One angle of this supplementary mechanical program now is in progress. This is vehicle speed control. One step in that direction has been the installation of governors, set at the company-prescribed limit of 45 miles-per-hour. At the present writing, about 60 per cent of the trucks have been so fitted.

These governors are being supplemented, and some day may be largely or entirely replaced by, the installation of recording tachographs; since the tachograph record of a truck not only will prove its speed limits but also will have value in a show-up of all highway stops.

### Driver Supervision Program

**THERE** have been two special developments in the highway supervision of Cushman drivers. These are: 1, A finger-tip office record system, with a summary record of the tests, operating mileage, and accident experience of each driver, condensed on the outside of his own personal office file as shown in Fig. 1; and 2, the present three-pronged road patrol activity.

As mentioned previously, since the beginning of his service as safety director, Chuck Zimmerman has devoted a great deal of his time to scheduled patrol work. This activity and his car are well-known to all Cushman highway drivers. When he observes a practice by a particular driver that requires correction, Zimmerman carries the matter through personally with this driver, either in a conference or through a letter.

The patrol activities of the insurance company and the road engineering service also are well known to the Cush-

(TURN TO PAGE 112, PLEASE)

**PLAY SAFE  
DON'T DRIVE  
WITHOUT**

**Signal-Stat  
DIRECTIONAL SIGNALS**

**STANDARD EQUIPMENT ON NATIONALLY ADVERTISED TRUCKS**

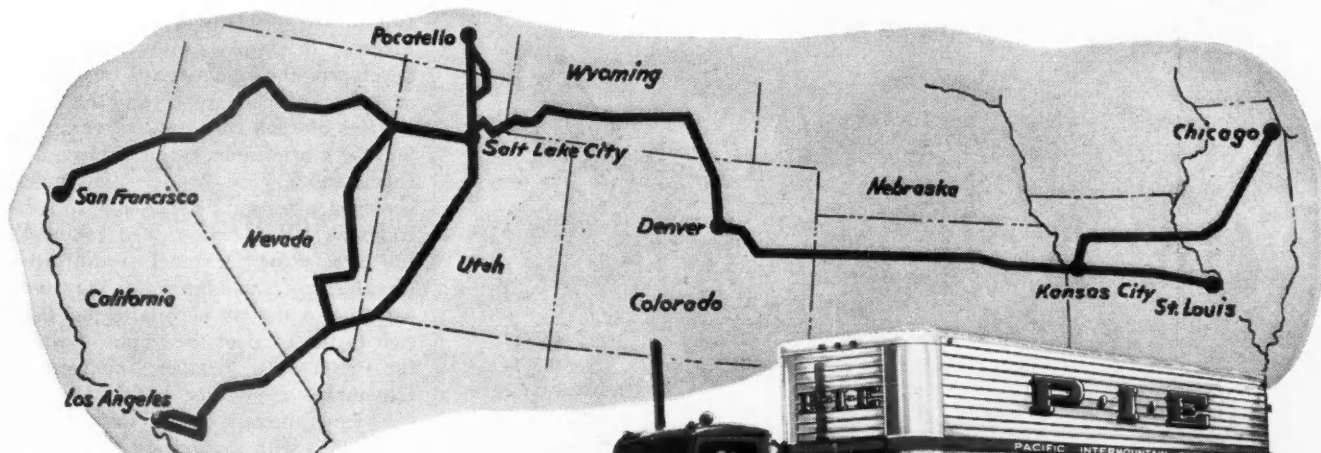
**THE ONLY DIRECTIONAL SIGNAL WITH THE  
BURN-OUT-PROOF SWITCH**

Favored because of their dependability and safety by both owners and drivers, Signal-Stats offer protection under all sorts of operating conditions. Approved by American Association of Motor Vehicle Administrators (AAMVA) and States requiring directional signals.

**Signal-Stat CORPORATION**  
SIGNAL-STAT BUILDING  
1430 Herkimer St., Brooklyn 33, N. Y.

# P · I · E

## Fast Motor Freight Service Now 100% with Brown Aluminum Trailers



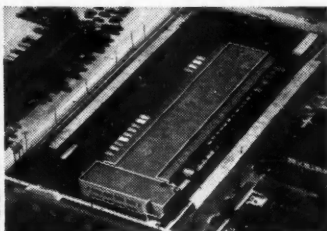
P.I.E. Motor Freight Terminal at St. Louis, Mo.



Since 1945 when Pacific Intermountain Express placed their first order for Brown Aluminum Trailers, they have placed repeat orders every year — now are exclusively Brown.



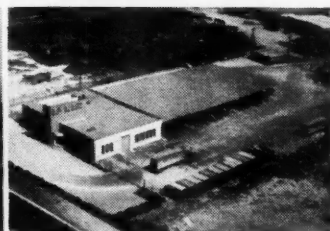
Freight Terminal and General Shops of P.I.E. at Denver, Colo., staffed by 460 employees.



Newest Freight Terminal of P.I.E. opened in Chicago in 1948 — accommodates 56 trailers at one time.



At the end of the line — P.I.E. modern terminal, Los Angeles, Calif.



Serving the San Francisco area, P.I.E. Terminal at Emeryville, Calif.

### P. I. E. SERVICE IS BUILT ON TRAILERS — TRACTORS — TERMINALS

P.I.E. offers shippers every facility for fast, dependable motor freight service. Over 300 Brown trailers that carry more freight are hauled by powerful, dependable tractors between modern terminals that provide for swift transfer and delivery via Brown pick-up units.

In nine short years P.I.E. service has put them in the forefront of the nation's haulers. Thirty

million line haul miles were clocked by P.I.E. units in 1949 — 30,000,000 miles over which Brown Lightweight Trailers demonstrated their rugged dependability, ease of pulling and extra capacity and payloads.

Brown Trailers is proud of the fact that P.I.E.'s five years of experience with Brown has won them the exclusive right to display the P.I.E. symbol.



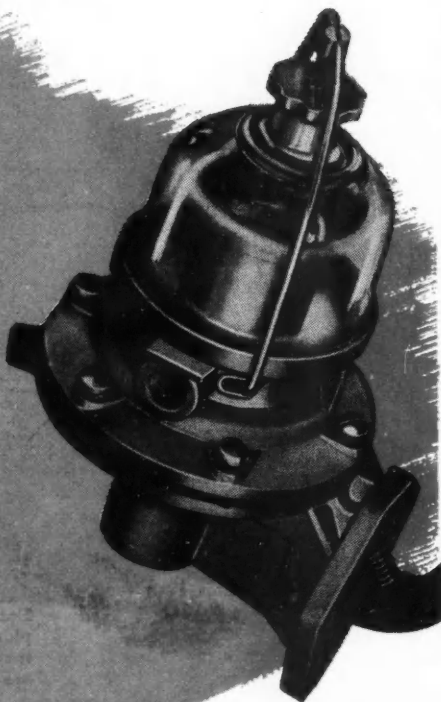
**BROWN TRAILERS, INC.**  
Toledo, Ohio      Spokane, Wash.

# Going Over **BIG...**



## COMPLETE LINE OF **Fuel Pumps** and **KITS**

Give You  
Something  
to Talk  
About



—the strong, selling story  
of the exclusive, long-  
wearing, trouble-free  
**NYLO-PRENE®** diaphragm.

There's an exact-dimensional, perfect-  
fitting replacement — for all popular  
makes of cars — in the *complete line* of  
P. & D. Fuel Pumps and Kits.



IN ONE WORD  
**dePenDable**

**P&D**

**MANUFACTURING COMPANY, INC.**

LONG ISLAND CITY 5, N. Y.

## Coaching Cuts Accidents

Continued from Page 110

man drivers. However, these latter two agencies do not personally contact individual drivers. They send, directly to the department, an individual observation report on each vehicle observed.

Each month, for each Cushman driver, there usually will be filed from two to six observation reports on his highway driving. The department has developed the practice of mailing a summary of each report to the home address of each concerned driver. This may be a brief note, typed on a regular Cushman 5½ x 8½-in. office-memo sheet or a formal letter on a full-size company letter-head, signed either by the director of personnel or the director of safety; and the letter may indicate that a carbon copy also has been sent to the local of the union of which the driver is a member. Zimmerman also makes a practice of following up his memorandums or letters with personal talks with the drivers.

The combination of these various activities is getting results. As time goes on, the cumulative benefits of the present overall program should pile up new safety records for the company as well as its drivers.

**END**

Please resume your reading on p. 64

### Fleet Supervisors Elect Officers

At the New York City Society of Fleet Supervisors' annual meeting, Theodore McGill was elected president; Thomas Berk, vice president; John Kavanagh, secretary; and Walter Langseder, treasurer.

McGill is district superintendent of the New York City Department of Sanitation, and has been serving as chairman of the Special Activities Committee of the Society. Berk is assistant director of safety for the Metropolitan Life Insurance Co. Kavanagh is Fleet Superintendent of Hageman Farms Co., Ridgewood, Brooklyn, and Langseder is Fleet Supervisor of Thomas J. Lipton Co., Hoboken, N. J.

In Florida, the Society of Fleet Supervisors of Greater Miami elected the following officers for the next term of office: president, Capt. James Singleton of the City of Miami Fire Dept.; vice president, Truman L. Smith, superintendent of maintenance for the city of Coral Gables; secretary and treasurer, Henry Allen, superintendent of maintenance for Florida Power & Light. Board of directors elected were L. B. Dial, Maule Industries; Owen Brown, Coca Cola Bottling Co.; Armeden Leonard, Leonard Bros. Forwarding; Russell K. Dawson, Florida Dairies.

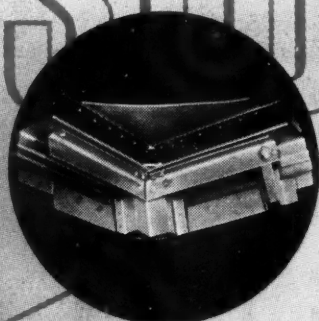
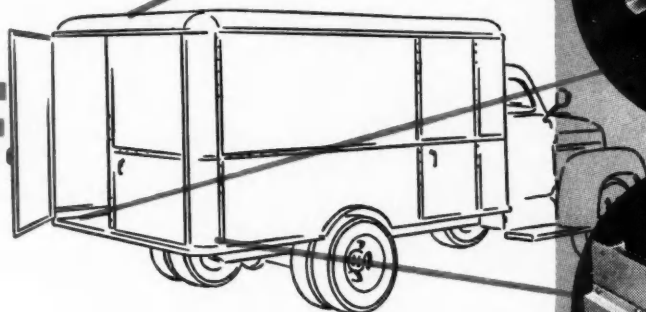


TURN MORE DEAD WEIGHT INTO PAYING FREIGHT WITH—

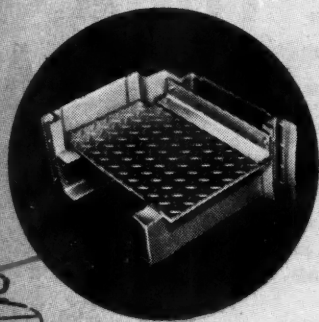
# MAGNESIUM

cut the weight  
of this truck body

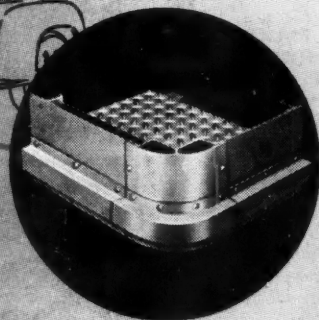
IN  
HALF



1



2



3

From an average of 2400 lb. in steel to approximately 1200 lb. in magnesium—a 1200 lb. reduction in costly dead weight! That's what magnesium can mean to a user of 12-foot van panel-type truck bodies. Weight savings like these can mean an immediate increase in operating profit to fleet owners.

Lighter bodies often mean better gas mileage, less wear on tires, brakes, and clutches, reduced maintenance costs, and usually lower license fees. Magnesium often reduces body weight enough to make it possible to use a smaller, less expensive truck chassis. Magnesium bodies are strong, too. The use of lightweight magnesium permits massive sections at vulnerable points like those shown above.

For more information about magnesium truck bodies, or the name of the body builder in your vicinity, call the nearest Dow sales office, or write direct.

**The Lightest Bodies Are Made from Magnesium**

MAGNESIUM DIVISION Dept. MG-100

**THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN**

New York • Boston • Philadelphia • Washington • Atlanta • Cleveland • Detroit • Chicago  
St. Louis • Houston • San Francisco • Los Angeles • Seattle  
Dow Chemical of Canada, Limited, Toronto, Canada

## Magnesium Bodies are Strong and Durable

- 1 Upper corner seen from the inside. The ability to stand up under rough usage comes from massive magnesium sections like these shown here.
- 2 Inside view of lower corner. This too shows why magnesium bodies are able to "take it". Magnesium lightness permits rugged sections without the penalty of heavy weight.
- 3 Outside view of lower corner. Here again, magnesium extrusions specially designed for truck body use supply more than adequate strength in this vital area.



## Custom Styled Body for Retail Bakery

Continued from Page 57

in such a manner as to make all part length cut offs straight cuts, thus eliminating notching, fitting and mitering which are always time consuming operations.

Special attention is called to the Offset Roof Cove which permits the use of simple straight cut roof bows, and a simple upper corner liner. This liner as will be noted gives a good, clear inside finish for the full height and

width of the body. It will also be noted that this type roof, roof cove and corner liner greatly facilitates roof insulation to any desired thickness.

Attention is also called to the use of a sectional floor which is quite satisfactory in this type of body and operation. This floor section embodies in one piece the floor sheet, cross bars and floor sill. A floor of this type is made in convenient sections and weld-assembled.

For bodies doing heavier work, such as milk delivery, longitudinal stiffeners are welded on the under side of the floor sheet.

Liner slats conveniently located at bread case heights and the multiple rub rail are used structurally to eliminate the usual belt rail and at the same time eliminates considerable cutting and fitting of this part.

Where any volume of production is involved the use of the simple roof corner liner in the inside vertical corners greatly simplifies jiggling and dimensional layout as all inside dimensions would be taken from and controlled by these liners.

The front and rear roof caps, coves and front windshield assemblies are all standard parts available in a variety of sizes to suit the different body sizes and chassis.

### Painting and Lettering

THE overall appearance of this unit may be further enhanced by careful consideration of a color and lettering or decal layout which will blend into the modern chassis lines of today and which employs suitable colors and symbols suggestive of the product being delivered. As an example shades of brown with yellow or straw trim suggests bread or wheat and in the lettering a distinctive symbol using wheat as the motif can be used.

END

Please resume your reading on P. 58

## MORE THAN *good* PERFORMANCE

MAN O' WAR, the magnificent red stallion, won 20 of his 21 starts and made over \$1,000,000 for his owner, Samuel Riddle.

MOLD-BLOK MAKES ITS OWN RECORDS IN DAY BY DAY PERFORMANCE THAT IS BETTER THAN GOOD. ON THE FLEETS OF MANY OPERATORS IT GIVES EXCEPTIONAL SERVICE YEAR AFTER YEAR.



**MOLD-BLOK**  
BRAKE LINING

- NON SQUEAL
- NON-SCORING OF DRUMS
- LOWER COST PER MILE TO OPERATE
- UNIFORM CO-EFFICIENT OF FRICTION

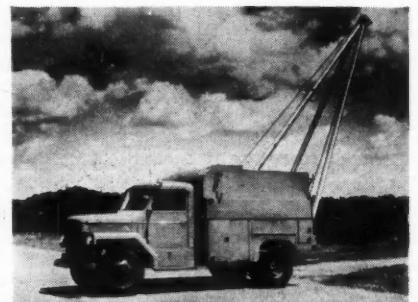
**MOLDED MATERIALS DIVISION**

OF

**CARLISLE CORPORATION**

RIDGWAY, PA.

### FWD's New Utility Bodies



Model U9 maintenance body mounted on FWD's new Model LD four wheel chassis, is one of the new line of utility and telephone line construction and maintenance bodies recently announced by The Four Wheel Drive Auto Co. Platform body is built of 12 gage safety tread steel plate and measures 90 in. wide with a length of 9 ft. Three section top telescopes to provide space for winch and derrick

# CHROME

where it does the most good  
—on the oil control rings



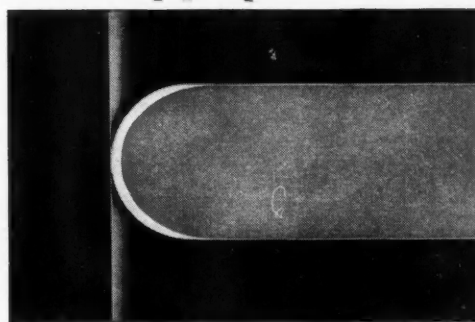
*3 to 4 times the life under severe operating conditions*

It's the oil control rings that usually determine the life of any set of piston rings. That's why Hastings adds chrome on these vital oil rings, where it does the most good.

The Chrome-Faced Steel-Vent and the Chromlube are making amazing performance records under the most severe operating conditions. Reports of three and four times normal ring life are common.

All Hastings truck and tractor sets are available with chrome oil rings. Install them on your next heavy duty re-ring or rebore job.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN  
Hastings Ltd., Toronto



#### Hairline Contact

The chrome-faced edge of Hastings steel segments is not flat, but round. This rounded edge gives a fine, hairline contact with the cylinder wall—helps the ring seat properly with greatly reduced cylinder wall drag.



# HASTINGS

## STEEL-VENT

## PISTON RINGS

CHROME-FACED FOR HEAVY DUTY SERVICE



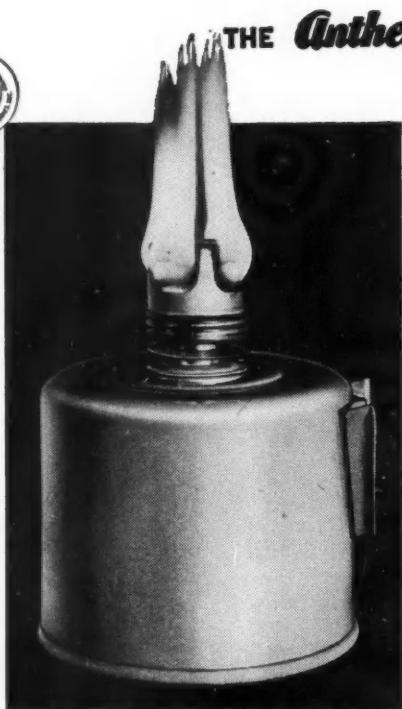
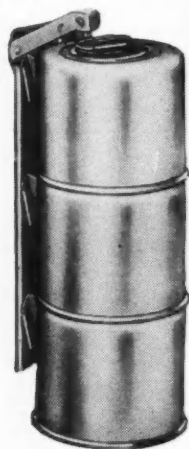
# Good Rings Properly Installed Cut Engine Wear

By Helmuth Braendel\*

Chief Engineer  
Wilkening Piston Ring Co.



**MOTOFLAR V-3**  
Burners retract into body. Set of 3 fits compactly in mounting bracket. Leak-proof; instantly accessible. As shown below complete; \$5.85 list.



## WHEN YOU SEE OPEN FLAME

**you know there's trouble!**

You can get the *greatest* safety at *lowest* cost when you use Anthes Oil Flares. Many operators prefer oil flares, and Anthes is still their No. 1 preference. Rain, snow, mud, and wind do not affect this *dependable* danger signal. Its own light source with 360° visibility.

The Anthes line consists of seven models, each designed to fit special requirements. The V-3 Motoflar shown here is a popular one. Ask *your jobber* for Anthes Flares. He can fill all your oil flare needs—and give you the best in reflector type flares, also made by Anthes.

ANTHES FORCE OILER CO. FORT MADISON, IOWA



**... and proud to serve the safest  
drivers on the road!**



▼ THERE are three main causes of wear in engines. They are abrasion, corrosion and scuffing. Scuffing which may deteriorate into scoring is caused by the temporary lack of lubrication of two metal surfaces which press against each other while moving past each other. As soon as the oil film is interrupted the high points of the mating surfaces engage in metallic contact and physically abrade material from each other. In most cases such intense localized heat will be generated by this abrasion that the two surfaces will be welded together and torn apart which produces the typical scuffing marks found in cylinders and rings and pistons along the path of motion. This action generally takes place during a very small section of the stroke and will occur only under certain operating conditions. In spite of this, it is responsible for a large proportion of the wear experienced in our present day engines.

It can be entirely eliminated if we are successful in providing a continuous oil film for the compression rings under all operating conditions. Contrary to some opinion of the subject, the attainment of this does not mean that we must sacrifice oil control in the engine. In fact, the exact opposite is true. If the component parts of the engine are properly designed to eliminate scuffing, the engine will likewise provide exceptionally high oil control.

A properly designed cylinder will remain straight and round and provide uniform cooling along the entire length of the stroke during all operating loads. The only design which could conceivably meet these requirements is a full floating wet sleeve which will be free from any thermal or structural deformation. Such a design is not economically feasible in passenger cars or even a medium size truck. So, we have cylinders which do not remain straight or round and, consequently, are subject to both thermal and structural distortions to varying degrees. Heavy wear and short life will be experienced unless the piston rings are designed to meet these unfavorable conditions. The freedom from distortion of the cylinder and the degree with which the oil rings will conform to the amount of distortion present in the cylinder is, in general, a measure of the freedom from scuffing which will be experienced in the cylinder assembly. Of course, one way to reduce the effect of scuffing in distorted cylinders, which, however, is in uni-

\*—Excerpted from a paper presented at the SAE Summer Meeting at French Lick, Ind.

versal disrepute, is to permit abundant quantities of oil to reach the compression rings. This results in extremely high oil consumption and coking and plugging are additional undesirable by-products.

Under unfavorable conditions, however, even an abundance of oil will not eliminate the scuffing. This is easily seen because at such points where the cylinder moves outward ring pressure is low and sometimes even contact with the cylinder wall is interrupted, while along such areas of the cylinder which move inward exceptionally high ring to cylinder pressures are established. The oil ring, consequently, will permit too much oil to pass in some areas and have a tendency to scrape the cylinder wall too dry along the localized areas which move inward. Sections of the compression rings located immediately above the heavily scraped areas of the cylinder wall will also bear more heavily on the same inwardly displaced wall sections thereby providing ideal conditions for scuffing. The evidence of this is very easily seen in some siamesed bore engines where scuffing does not take place along the major and minor thrust axis where it might normally be expected but in line with the engine along the siamesed side only, which is, of course, the area of the cylinder which moves inward due to insufficient cooling. However, cylinders need not be siamesed to give enough distortion to result in scuffing.

#### Conformable Rings Cut Wear

**T**HE principal means available to overcome the effect of high spots and localized dry areas in distorted cylinders is to design the oil ring to make it exceptionally conformable. If the ring can be designed to exert a uniform pressure against the cylinder wall regardless of the shape and change of shape of the wall as the ring moves along the length of the stroke, a uniform oil film will be metered to the compression rings, and the conditions for scuffing will be virtually eliminated. In addition, a corresponding decrease in oil consumption will be experienced resulting in the paradoxical result that engines which run exceptionally dry will, upon disassembly, show also exceptionally low wear. This just means that the ideal in minimum uniform oil metering has been attained. It has been just enough to provide the compression rings with sufficient lubrication under all operating conditions.

We have had relatively conformable oil rings for a considerable period of years. Such rings are designed with lower radial thickness to make them flexible and then provided with some auxiliary loading device to give them

sufficient wall pressure. Expanders which contact the bottom of the groove and the top of the rings have been employed for a long time to provide the supplementary radial pressure required. There has been an unreasonable prejudice on the part of the engine building fraternity to employ such conformable rings, most of which, I suspect, is pride in that the engine designer did not wish to admit that he had sufficient cylinder distortion to require anything but the plain snap ring. Recently a

large improvement was made in providing the flexible and conformable ring with the auxiliary radial pressure by means of an inner ring which simultaneously exerts an absolutely uniform pressure onto the ring around its entire circumference but does not contact the groove bottom. The conventional groove bottoming and hump type expander exerts its force on the ring at 8 to 9 points and is very dependent upon the accurate maintenance of groove depths  
(TURN TO PAGE 120, PLEASE)

## More Sales . . . More Profits with the New 1950 **MORRISON Carry-All**



Morrison "Carry-All"  
Model B-910

### The World's First Mass-Precision All-Industry, All-Purpose, All-Steel Service Body that Fits All Standard Commercial ½, ¾ & 1 Ton Truck Chassis!

"Carry-All's" exclusive design and its extensive tooling and engineering make possible heavy gauge steel construction and a unique bridge-type underbody . . . these make possible huskier construction with lighter over-all weight and fewer number of parts than any comparable body on the market.

*Write for the new bulletins on the guide to the selection of service bodies.  
They're yours free for the asking.*

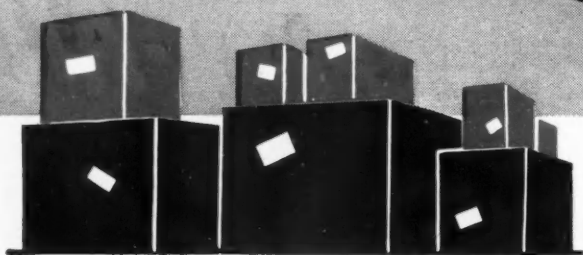
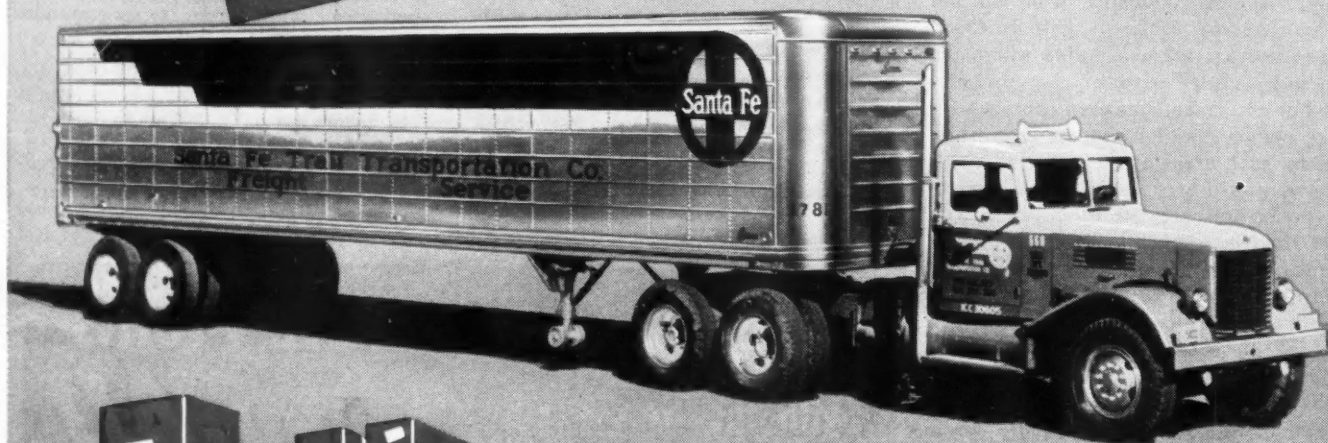
**MORRISON STEEL PRODUCTS, Inc.**

603 AMHERST ST. Carry-All Body Division BUFFALO 7, N. Y.



**LIGHTWEIGHT GIANT!**

Despite its 45-foot length, this big aluminum semi, built by Brown Trailers, Inc., Spokane, weighs only 11,000 lbs. . . can carry maximum loads allowed in states served by Santa Fe Trail Transportation Co.



**EXTRA PAYLOAD IS  
THE PAYOFF WITH "MILLION-MILERS" OF  
ALCOA ALUMINUM**



Since purchasing its first aluminum monocoque semi from the Strick Company, Philadelphia, in 1939, Adley Express Co., New Haven, Conn., has added over 200 more. "Most economical trailers we ever used," they report.

**200-PLUS ALUMINUM FLEET!**



Typical of Trailmobile's new line of "All-Aluminum" semitrailers, this lightweight unit gives Anderson Motor Service, Inc., St. Louis, more than a ton of payload bonus on every trip. Its sleek alclad side panels need no paint.

**3,000-LB. PAYLOAD BONUS!**



When your battle against costs gets toughest, remember this. Trailers of Alcoa Aluminum help you *earn more*—let you *spend less*. Because aluminum is light. Because aluminum lasts.

The proof is in the records of fleets famed for efficient operation. Aluminum subtracts dead weight—adds payload capacity. Up go your revenues! Down go your costs for fuel, tires and chassis maintenance. Body upkeep costs less, too, because aluminum resists corrosion, does not require painting. Repairs can be made quickly, inexpensively, right in your own shop. You get a safety bonus, too, because aluminum's light weight permits thicker, more massive sections.

For profit's sake, ask your truck or trailer builder *now* for full information on all-aluminum equipment!

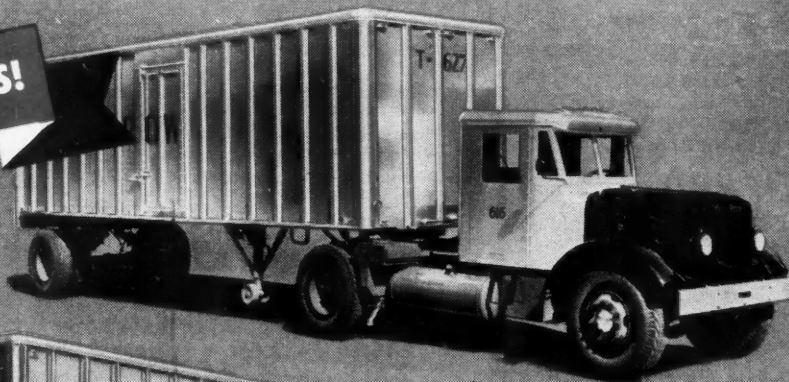


### Send for Free Booklet

36 illustrated pages of valuable information on trailers of Alcoa Aluminum. Write for your copy of "Payload Proof". ALUMINUM COMPANY OF AMERICA, 1860J Gulf Bldg., Pittsburgh 19, Pa.

**ALUMINUM PACE-SETTERS!**

The Arrow Carrier Company operates more than 130 of these aluminum monocoque semitrailers built by Veenema & Wieggers, Inc., Paterson, N. J. Weighing only 5,900 lbs., this type makes very extensive use of light alloys.



Associated Transport, New York, picked this aluminum trailer as the ultimate in light weight and low maintenance. Hundreds built by Brown Equipment & Mfg. Co., Taunton, Mass.

**OPERATORS' CHOICE!**

## ... Cut Engine Wear

Continued from Page 117

to provide the proper radial force. The new equalizer is designed on the peripheral abutment principle. It is, consequently, entirely independent of groove depth provided sufficient space is available which is the case in any standard SAE groove.

As long as we build integrally cast cylinder blocks which is the only low cost method of producing them, we will have cylinder distortion to varying de-

grees which will always give the conformable oil ring a distinct advantage over the single piece snap ring in regard to wear, oil control and engine life.

The other important factors which effect the resistance to scuffing is the design of the compression ring. For the past 30 years we have seen compression rings become progressively narrower as the specific output of engines has increased. The narrow rings have become necessary for two main reasons, both of which are primarily to reduce scuffing. It is universally known that a wide ring will scuff whereas a narrow

ring will be free from scuffing under a specific loading.

There are a number of other design features on the part of the rings, pistons and cylinders which will reduce scuffing and the wear of the parts resulting therefrom. I will only briefly mention them because they are quite generally known.

### The Cylinder Finish

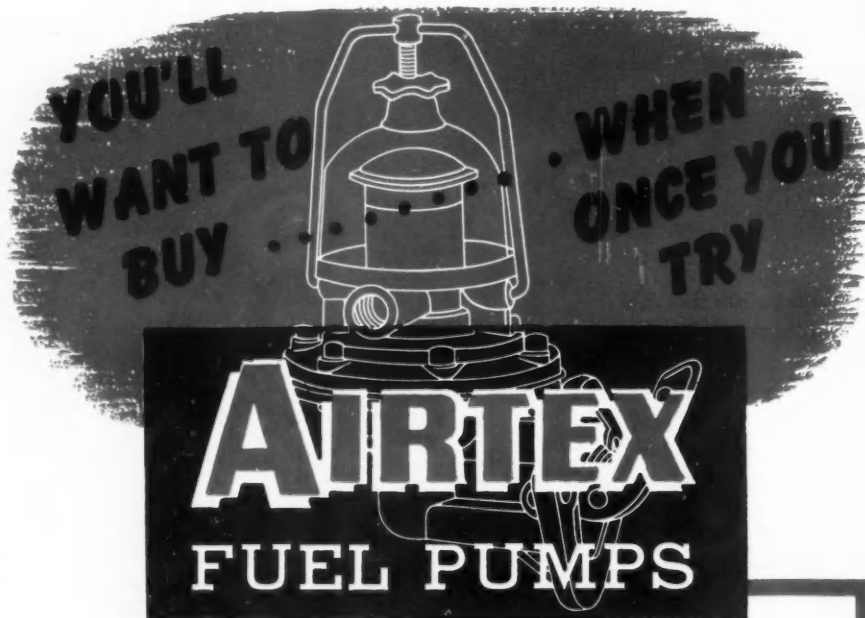
**CYLINDER** finish is of utmost importance. A surface which is sufficiently rough to give quick seating as well as additional oil retention qualities is desired. A scratch honed cylinder with cross hatched pattern having a roughness of 15/30 micro in. will generally give the best results. The cylinder material employed is, of course, extremely important; cast iron being still preferred above all others mainly because of its open structure. The structure is more important than the hardness or the chemical analysis as far as resistance to wear is concerned. The graphite content and certainly the porosity of cast iron give it an oil holding ability unsurpassed by any other material with the exception of reverse etched channular porous chrome.

Compression rings are provided with anti-scuff coatings which consist either of a porous interrupted surface filled with graphite and iron oxide which holds oil or a phosphate coating which essentially provides a layer which prevents welding when the cylinder wall and piston ring surface temperatures approach the melting point. A third coating employed for the purpose of quick seating and scuff resistance during the wearing in period are the plates of soft metals, such as tin, lead and cadmium. These perform by the actual melting of the soft metal coating to serve as a temporary lubricant to overcome a temporary dry spot. The compression rings of all present day engines require a quick seating anti-scuff coating during the initial wearing in operation.

### Chrome Rings

**I**N THE interest of completing the discussion on scuffing, two other types of compression rings which are generally known should be mentioned. The one is a filled or oil carrying ring. This ring is provided with grooves which are filled with a porous material which will soak up lubricant where it is abundant, such as the bottom of the stroke, and carry it along to overcome any temporary dry spot. These rings are required and successfully used in a number of two cycle engines where the oil must

(TURN TO PAGE 123, PLEASE)



**PERFORM Better... Longer!**

#### AIRTEX

Anti-Pulsation  
FUEL FILTERS  
with the  
SHOCK ABSORBER  
DIAPHRAGM



- Protects carburetor needle valve and float lever against wear
- Makes frequent carburetor adjustments unnecessary
- Gives smoother operation at idle and low speeds

#### 50,000-MILE GUARANTEED DIAPHRAGM

- Won't crack, puncture, become porous or brittle
- Stays flexible through engine heat and fumes
- Withstands —35° temperature without stiffening
- Means quicker starting, less battery drain, fewer stalls, faster get away, longer life.



#### PATENTED VALVE CAGE ASSEMBLY

- Eliminates internal gasket — prevents leakage caused by gasket wear
- Gives perfect seal between valve and body
- Provides instant, ample fuel flow to carburetor without back tracking





# RIG IT IN 5 seconds!

## AMERICAN HEAVY DUTY UTILITY SNATCH BLOCK



Swing  
the  
hook...



Open hinged  
plate...  
lay in the line



Close  
hinged  
plate...  
block  
locks  
itself!

Here's a snatch block any man can rig in 5 seconds... without a wrench! No loose parts; nothing to drop or lose. Available in 6", 8" and 10" sheave diameters. Sold by distributors everywhere. For catalog showing all wire rope blocks—1½ to 250 tons...

**MAIL THIS COUPON**

### American Hoist

52 & Derrick Company 5303  
St. Paul 1, Minnesota

● Please send catalog on AMERICAN  
UTILITY SNATCH BLOCKS.

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

## ... Cut Engine Wear

Continued from Page 120

be severely controlled at the bottom of the skirt due to the effect of the ports.

The second type of compression ring which is becoming more and more popular, primarily for its resistance to wear, is, of course, the chrome plated top ring. Chrome plating the top ring will reduce the wear of all the rings as well as the cylinder up to one-fourth of that experienced with the same installation without a chrome top ring. It reduces wear by several means: Its extreme hardness resists abrasive wear which is understandable. It is much more resistant to the corrosive effects of the combustion products which are especially destructive when high sulphur fuels are employed.

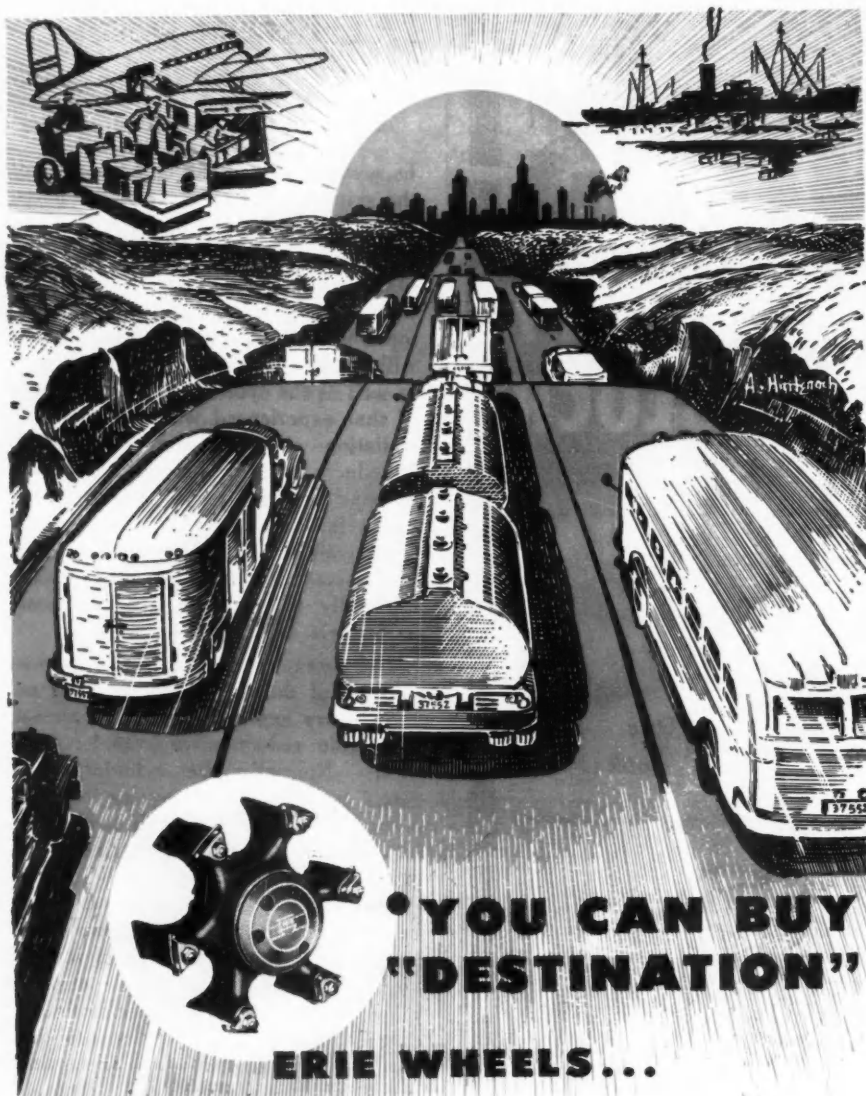
The foregoing explain the reduction in wear of the ring itself but offer no satisfactory explanation for the almost incredible reduction in cylinder wall wear. Normally the cylinder wear would be expected to increase because a very hard substance, such as chrome, is operating against the relatively soft material, such as cast iron. The reduced wear of the cylinder wall can be explained on the basis of two characteristics. One is the lack of imbedability of the surface of the chrome plated ring. Abrasive particles find it difficult to imbed themselves into this hard surface and then act as cutting edges on the cylinder wall. This is responsible not only for the reduction in cylinder wall wear but also for the reduced wear of the cast iron rings located below the top chrome ring since the non-imbedability of the abrasive particles impedes their movement to the lower rings of the assembly.

The second reason for obtaining lower cylinder wear is the resistance of the chrome plated ring to the effects of temperatures. Its melting point is higher than that of cast iron. This together with other differences in physical properties effectively prevent scuffing which is localized welding of the mating surfaces when the cast iron is brought up to the melting temperature by a local absence of lubrication. The lack of imbedability for abrasive particles as well as the anti-scuff characteristics of the chrome plated ring are together largely responsible for the reduction in cylinder wear which is in the order of 2 to 4 to one when a chrome plated top ring is employed.

The economical justification for using chrome plated top rings in present day engines cannot be disputed.

END





On Land, at Sea, and in the Air, swarms the traffic of transport . . . but it is "Destination" that man must achieve . . . The business of transporting the cargoes of industry and commerce demands speed, safety and dependability . . . the characteristics of Erie Wheels. Resilient, tough, durable Malleable Iron takes road shocks like a champion rolls with the punch . . . You can specify Erie Wheels on original equipment and for replacement . . . Buy Fast, Safe, Dependable "Destination".

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**ERIE MALLEABLE IRON COMPANY**

*Automotive Wheel Division*  
**ERIE • PA.**



550

## Hydraulic Loading Ramps

Continued from Page 92

apron used in conjunction with refrigerator cars.

For added safety each ramp was designed with four-way safety plate and a capacity for 10,000 lb.

Two of these ramps were installed in conjunction with a project designed to increase the width of the Naval Supply Center loading docks. Since there was still much congestion due to an ever-increasing workload at the Cold Storage Plant, four more ramps were recently installed.

The latter four are similar to the first two except that they are 6 ft wide and 8 ft long. Since refrigerator cars are not accessible to the platform on which the second group is installed, the ramps were devised to accommodate only trucks and vans. One other refinement is also present: all four new ramps are powered by two  $\frac{3}{4}$  hp units.

This ramp, designed through the combined efforts of the Supply Center's Services Department and a commercial corporation, has proved itself in terminal operations. While some fleets have made use of similar mechanical ramps, still others may be justified in looking into the possibilities of installing these time and labor savers in their own organizations. Here is a list of manufacturers of hydraulically- and manually-operated ramps of similar design:

The Wayne Pump Co., Fort Wayne, Ind.—Hydraulic Leveling Ramp.

Rowe Methods, Inc., Cleveland, Ohio—Electric Hydraulic System.

Superior Railway Products Corp., Pittsburgh, Pa.—The Ramp Described Here.

Wm. Christensen Co., Inc., York, Penna.—Mechanically Operated Type.

**END**

*Please resume your reading on P. 94*

### Wisconsin Truck Traffic Survey

An origin and destination survey of truck traffic over Wisconsin highways will be made by the State Highway Commission at the request of the highways investigating committee of the legislative council. The origin and destination data will supplement the weight and cargo statistics collected during the last 15 years by the loadometer stations of the highway department. It will provide material on the domiciles of truck operators, their customary routes, the nature of their cargo, and their freight volumes. The committee is interested in learning the proportion of intra-state and interstate truck traffic on Wisconsin highways. The primary purpose of the truck traffic study, however, is reported to be the legislatures projected reclassification of roads.

# Three Time A.T.A. Award Winner

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## TACHOGRAPHS

to maintain

"On-The-Minute schedules"



October 14, 1949

Wagner Electric Corporation  
6400 Plymouth Avenue  
St. Louis 14, Missouri

Gentlemen:

We have just been notified by the American Trucking Association that our firm has been awarded first place in the 3,000,000 to 5,000,000 mile annual safety contest. This is the third consecutive year our firm has been honored with this award.

In recognizing all helpful factors that enabled us to achieve these records, we would again like to express our appreciation for the helpfulness of the TACHOGRAPH, which we use as a safety control on each of our road units.

Our operation is unique in motor transportation. We perform as a motor express carrier covering virtually the entire state of Oklahoma, transporting principally rush and perishable merchandise, including daily newspapers. Our schedules must be held at a variance of only a few minutes. It is necessary in order to maintain these schedules, that we travel at the maximum speed permitted by law and yet so conduct our driving to conform to all of the rules of good safety.

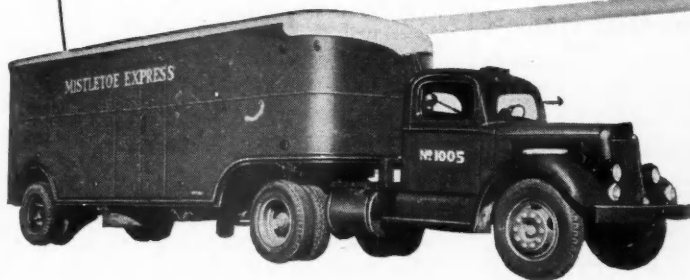
We have never used governors on our equipment, but have depended entirely upon an examination of the TACHOGRAPH cards at the completion of each run to determine the maximum speed which the driver is attaining, as well as the evenness with which he drives under the condition we know will normally exist over his run.

It would be impossible in an operation such as ours, to maintain "on-the-minute schedules" did we not have an accurate day to day check of the driving time between towns, as well as the loading, unloading and transfer time required at each stop around the route. We have found the TACHOGRAPH to be the only satisfactory answer to control this part of our operation.

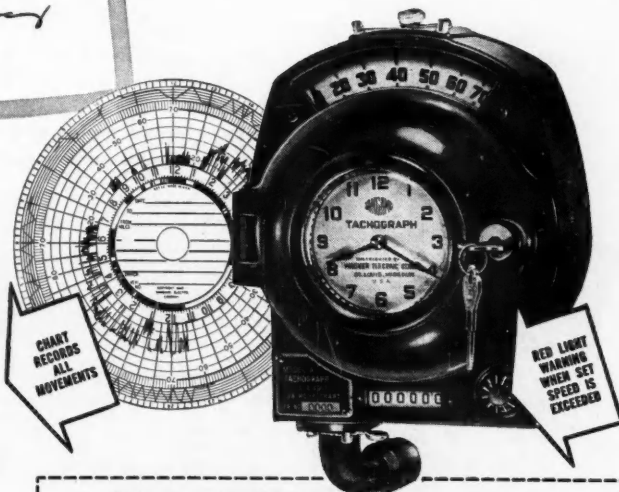
Yours very truly,  
MISTLETOE EXPRESS SERVICE

*Clyde Reeves*  
Clyde Reeves  
Manager

CR:hh



- WHEN ENGINE STARTED
- HOW FAST IT TRAVELED
- HOW LONG ENGINE IDLED
- WHEN VEHICLE STOPPED
- WHEN VEHICLE STARTED TO MOVE
- DISTANCE TRAVELED BETWEEN STOPS



### Wagner Electric Corporation

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640-10

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# Wagner

ELECTRIC CORPORATION

# Holley Develops Pressure Spark Advance

**ELIMINATION** of mechanical spark advance on ignition distributors for heavy-duty engines has been accomplished with the introduction of the Holley pressure distributor recently developed by the Holley Carburetor Co.,

Detroit, Mich. It has been adopted as standard equipment on Twin Coach "44-s" buses powered by the Fageol FTC-210 engine. Holley original equipment on this engine, in addition to the distributor, includes the 855-FFG car-

buretor and Centri-Vac governor.

The pressure distributor consists of four basic elements: diaphragm assembly, breaker plate assembly, distributor shaft and cam assembly, and base. For Centri-Vac installations the distributor base houses the governor rotor unit as well.

The full pressure distributor is unique in its response to both wide open throttle and road load spark advance requirements of the engine without centrifugal advance mechanism. Instead, pressures which exist within the carburetor are utilized. The pressure which varies as the engine speed is derived from the venturi, and that which varies with load from the throttle plate area. By balancing these pressures one against the other, through metering orifices, the net pressure is considered a function of the spark advance requirements of the engine.

This pressure is transmitted to a single diaphragm linked to the distributor breaker plate. The hub of the breaker plate is carried on the outside of the upper distributor shaft bushing. The force transmitted to the plate from the diaphragm assembly causes it to rotate, extending two calibrating springs and thus advancing spark timing.

One of the advantages claimed for this design is the elimination of backlash and possible eccentricity of the cam since the distributor shaft does not rotate with respect to the cam. Absence of centrifugal advance mechanism also greatly reduces the polar moment of inertia of the rotating assembly thus making torsional vibration absorbers unnecessary even in installations requiring very long shafts.

The distributor has been simplified for service and maintenance. The breaker arm and bracket assembly is designed as a complete factory assembled unit consisting of the breaker arm and the stationary breaker point, including the breaker arm pivot pin. Unit replacement of this assembly insures alignment of breaker points and includes a new breaker arm pivot pin not readily replaceable on conventional distributors. Breaker points can be adjusted by using a notch in the adjustable breaker point bracket, corresponding with a similar notch in a hole in the breaker plate. The blade of a screwdriver will fit in the two notches to act as a lever. Thus, the stationary breaker point may be precisely moved with one hand while the clamping screw is loosened or tightened with the other.

An additional feature is that the distributor can be adjusted while on test machines throughout the entire spark advance curve, without disassembly.

END

THERE IS *NOTHING* LIKE

*SPEED MASTER!*

NEVER BEFORE HAS THERE BEEN ANYTHING

LIKE *SPEED MASTER!!*

BECAUSE...

**SPEEDMASTER** controls motor RPM at manufacturer's rating . . . assuring full horsepower in all gear ratios . . . yet

**SPEEDMASTER** also controls road speed at any pre-determined rate . . . but

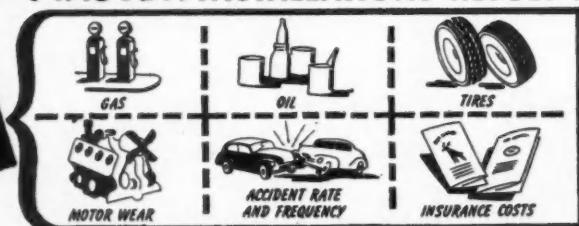
**SPEEDMASTER** always assures full horsepower potential, acceleration and efficiency up to controlled speed . . . and

**SPEEDMASTER** flashes a warning light at a point 5 mph before reaching the pre-set speed (optional) . . . and

**SPEEDMASTER** prevents excessive idling of motor . . . automatically cuts ignition circuit at any pre-set time (optional).

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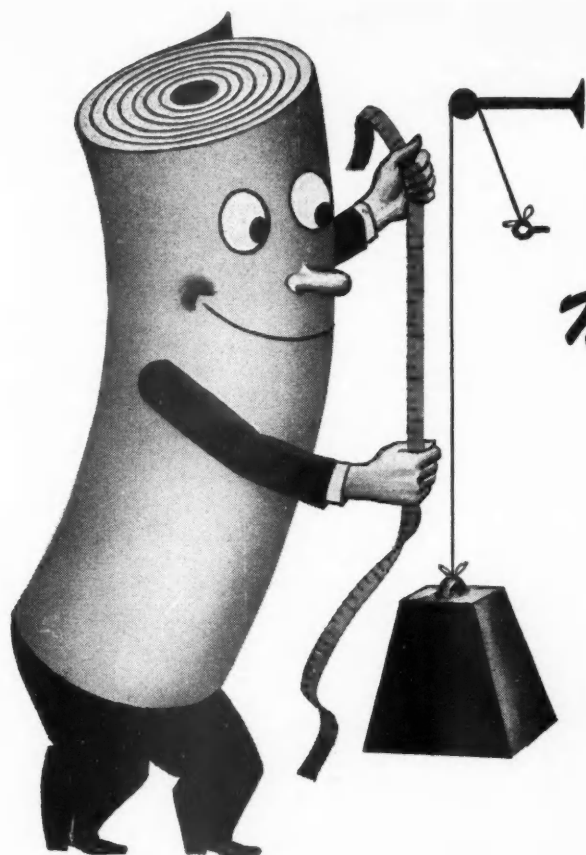
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Company.....

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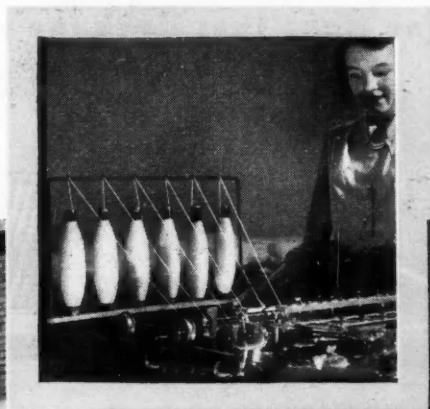


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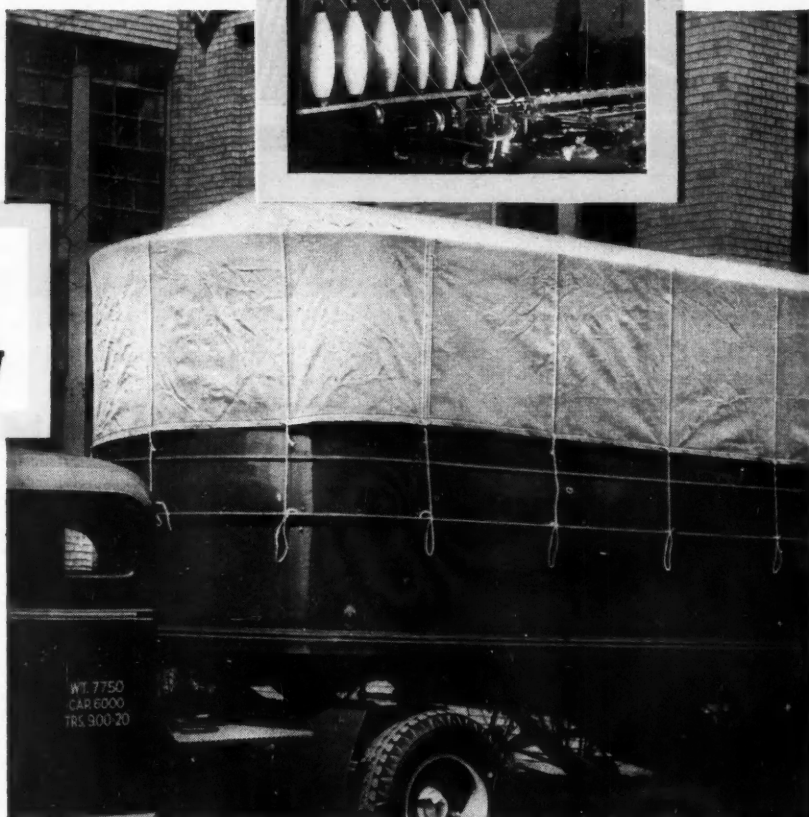
## In TRUCK COVER Fabrics

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*Gives You*  
**Greater Fabric Uniformity**

The greater uniformity of Mt. Vernon Extra Duck—the straight, smooth, weather-tight seams made possible by its even selvages — mean added cargo protection, longer wear, lower repair and replacement costs.



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Akron

# Cargo Heaters Assure Better Cargoes

Continued from Page 71

inside the cab actuates the heater fans, which in turn are controlled through thermostats. Heater cores are of the fin and tube type, designed for effective heat transfer. A self-sealing coupling for the hoses between tractor and trailer permit quick separation and reconnection with loss of fluid or the introduction of air into the system. This heater is rated at 60,000 Btu at a 150-

deg temperature differential. The circulating mechanism is also effective for summer cooling with the use of dry ice. In this case the heater is installed at the front end and a bunker wall is located in front of it, and ducting is provided for proper diffusion of the cool air.

The Fluid Heat Division of Anchor Post Products, Inc., produces a coolant

type heater with a rated capacity of 15,000 Btu per hour. This heater is automatic, thermostatically controlled, utilizing a system with a minimum of current drain. While designed for lighter service requirements, this model can be adapted to various size bodies and will provide cab heat as well with the addition of available ducting.

American Gas Machine Co. is currently in production of three models of LP gas operated cargo heaters for a wide variety of hauling requirements. All units are automatic, bottle gas fired, simple in operation and easily serviced. There are no moving parts in this type of heater. Fuel supply is mounted outside the trailer usually under the floor as a safety precaution and for convenience in refilling. Models in 12,000 and 22,600 Btu per hour are available.

Elston LP gas heaters in two models offer several features in this type unit. Model X-100 is a wall-mounted unit interchangeable with most refrigeration units, while Model X-200 is mounted inside the trailer body. Both models feature automatic dual regulation to convert from one propane cylinder to the other, thermostatic temperature control and simplicity of operation. Propane cylinders are held in container housings either on the front of the trailer (Model X-100) or under the floor (Model X-200).

END

Please resume your reading on P. 72



HERE's the fastest-selling marker light today! Arrow's handsome streamlined Marker Light snaps up the appearance of any vehicle. More than that, it meets I.C.C. and State specifications . . . may be used on corner installations in place of two lights; may be mounted on fenders as parking lights.

Superbly constructed, with glass lens that will not scratch or fade. Easily and quickly mounted. Comes in three standard base designs to fit practically any body curvature: flat, 1/4" curve, or 7/16" curve. Rubber mounting gasket makes tight fit, prevents vibration. Choice of three finishes — black, chrome, or satin; and six lens-colors — blue, green, amber, clear, moonstone, or red.

There are a number of other Arrow marker lights — brackets, flush-type, or armored — designed for every conceivable purpose. All of them are built to give years of trouble-free performance. See your jobber salesman today.



**ARROW SAFETY DEVICE COMPANY**



**MOUNT HOLLY, NEW JERSEY  
SAFETY AFTER DARK**

## I-H Introduces Six Wheelers

Twelve new six-wheel truck models featuring many important engineering and structural innovations, were introduced by International Harvester Co.

These models, elements of the L-line, include the LF-170, gvw 22,000 lb; the LF-171, gvw 24,000 lb; the LF-172, gvw 26,000 lb; LF-174, gvw 28,000 lb; the LF-190, gvw 30,000 lb; the LF-191, gvw 32,500 lb; the LF-182, gvw 35,000 lb; the LF-194, gvw 38,000 lb; the LF-195, gvw 35,000 lb; the LF-210, gvw 37,000 lb; the LF-211, gvw 41,000 lb; and the LF-212, gvw 45,000 lb.

Featured is the new third differential mounted on the forward tandem axle. A single propeller shaft runs to the forward axle and from there, through the third differential, to the rear axle. This construction is an important improvement over the usual power divider and two separate propeller shafts.

Powering the LF-170 series six-wheel trucks is the International 100.5-hp Super Blue Diamond engine and the 154-hp Super Red Diamond engine powers the LF-190 and LF-210 series. The 162-hp Super Red Diamond 450 is standard for models of the LF-210 series.

**MORE**

**STOPS**

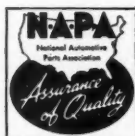
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COLD DOLLARS AND CENTS PROVE WHY American Brakeblok Brake Lining is the first choice of truck and bus operators. Under all conditions, on all kinds of equipment, it delivers more mileage, requires fewer adjustments, is easier on brake drums. All of which adds up to less costs—more safe, sure stops on *your* penny.

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COMPANY

**AMERICAN BRAKEBLOK DIVISION**  
DETROIT 9, MICHIGAN



Fuel Economy

Continued from Page 72

tion tests on diesel or gasoline engines. Examples of "fish-hooks" are shown in Fig. 2.

Fig. 1 reveals many interesting fuel consumption characteristics of the engine. The closing lines resembling contour lines on a map are lines of constant specific fuel consumption.

Maximum fuel economy (i.e., min-

	HP	Diesel Engine		Gasoline Engine		Fuel Saved Gallons Per Hour
		Gals. Per BHP Hour	Gallons Per Hour	Gals. Per BHP Hour	Gallons Per Hour	
Full Load.....	160	.054	8.65	.092	14.70	6.05
¾ Load.....	120	.053	6.35	.092	11.05	4.70
½ Load.....	80	.057	4.55	.103	8.25	3.70
¼ Load.....	40	.065	2.66	.135	5.40	2.74

FIG 3. Fuel savings of the diesel engine

imum specific fuel consumption) is obtained when operating at speeds and horsepowers falling within the "island" indicated by "A." Specific fuel consumption increases as one departs from this area.

What does this mean and what practical value does such a chart have? This can best be answered by a few examples.

Assume a trucker is returning empty from a haul. The vehicle weight and load are such that the horsepower and speed represented by point "X" are required to move the vehicle at the desired speed. However, the gear which the driver has chosen requires that the engine operate at practically maximum engine speed as indicated by point "X." Under this set of conditions fuel is being wasted; since lower specific fuel consumption could be obtained at the required horsepower output by moving the operating point "X" to the left. This shift can be accomplished by shifting to a different gear which in turn allows the engine to operate at slower speed in order to maintain a given road speed. Of course, the proper gear ratios must be available in the equipment under consideration and engine should always be operated at a speed in excess of 75 per cent of full rated speed.

Another use of this chart is to pick conditions under which the engine should be applied in order to get maximum fuel economy. For example, to get maximum economy, the road speed, size of vehicle, and gearing should be such that the engine normally operates as near the region of minimum fuel consumption as possible.

Similarly this chart would be of value in picking the most efficient engine speed for applying an engine to industrial applications—particularly those applications with belt, chain, or reduction gear drives which allow a flexibility of engine speed; provided, of course, one also adheres to the proper engine horsepower deratings for intermittent or continuous service and altitude.

It would be well to point out at this time that this discussion deals only with maximum fuel economy and that other factors also affect the (TURN TO PAGE 134, PLEASE)



Word gets around fast. That's one reason why more than 25,000 aircraft, auto body, and sheet metal men now use the PREST-O-WELD W-109 Welding Blowpipe. They're getting their jobs done faster, better, and easier than ever. Other good reasons are built right in the blowpipe.

With medium welding head, the W-109 is just 12¾ in. long and weighs only 12½ oz. It's balanced, too, so you can handle it all day without tiring. Its valves are up in front—right under your thumb. Its eight heads, each with its own shielded mixer, weld any metal up to ⅜ in. thick. Long and slender, they reach easily into the tight spots or around jigs and fixtures. Each gives you the stable flame you want, with full control of heat output for critical work.

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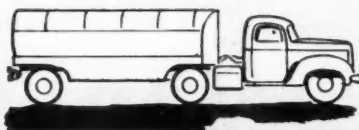
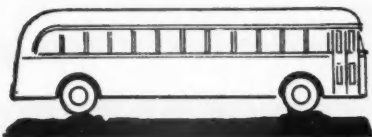
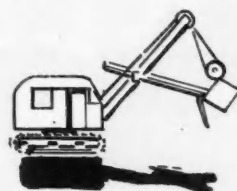
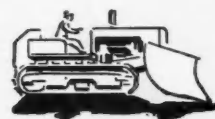
## For Fast Economical Replacement on Trucks, Buses, and Farm Equipment

No matter how rugged the motorized equipment, it's no tougher than its high pressure hose lines and hose ends. The NEW Weatherhead hose and hose couplings are rugged and sturdy—designed to replace damaged gasoline, oil, air and hydraulic lines on trucks, buses, tractors, tank trucks, farm machinery, power tools and other heavy duty units.

Full time service for all equipment and low cost inventory is assured by use of these inexpensive replacement parts. A minimum stock of hose ends and random length coils of hose are stored until needed to make a quick, positive and leak-proof connection of any desired length. They're economical because Weatherhead Reusable Hose Ends last through repeated hose changes—keep equipment operating, save costly lay-ups.

See your jobber for complete details or write direct to our Cleveland office for your copy of the NEW J-1503 Catalog describing the various types of Weatherhead Heavy Duty Flexible Hose and Reusable All Steel Hose Ends.

The Weatherhead Company also manufactures the well-known "Q A" (Quick Attachable) Hose Ends for passenger cars and light trucks.



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## Fuel Economy

Continued from Page 130

application. For example, everyone knows the folly of lugging an engine (i.e., operating with full throttle at reduced speed) when, by operating at a higher rotative speed, the throttle setting can be reduced resulting in a reduction in cylinder pressures which, of course, gives longer engine life. It is not our intention at this time to say that engines should *always*

be operated at the point of minimum fuel consumption since that may in some cases tend to "lug" the engine; however, we do believe that this matter is one of the factors for consideration in each case.

	Diesel Engine			Gasoline Engine			Hourly Saving with Diesel
	Gals. Per Hour	\$ Per Gal.	Hourly Cost	Gals. Per Hour	\$ Per Gal.	Hourly Cost	
Full Load.....	8.85	\$ .15	\$1.30	14.70	\$ .20	\$2.94	\$1.64
¾ Load.....	6.35	\$ .15	\$ .95	11.05	\$ .20	\$2.21	\$1.26
½ Load.....	4.55	\$ .15	\$ .68	8.25	\$ .20	\$1.65	\$ .97
¼ Load.....	2.86	\$ .15	\$ .40	5.40	\$ .20	\$1.08	\$ .68

FIG. 4. Dollar saving of the diesel over the gasoline engine

Similar charts to Fig. 1 can also be made for gasoline engines.

The gasoline engine, however, is notably different from the diesel in that it has a higher specific fuel consumption at the lowest point, and in that the fuel consumption increases much more rapidly as we move from the point of minimum consumption. The comparison between the fuel consumption characteristics for the gasoline and the diesel is shown in another manner in Fig. 2.

These curves, which are typical fuel consumption curves for diesel and gasoline engines of approximately 175 hp, illustrate two things:

(1) Lower specific fuel consumption of the diesel at the optimum operating point. At three-quarter load and three-quarter maximum speed the fuel consumption of the gasoline engine exceeds the fuel consumption of the diesel by approximately 73 per cent.

(2) More rapid increase in the specific fuel consumption of the gasoline engine as we move away from the optimum operating point. For example, at one-quarter load the fuel consumption of the gasoline engine exceeds the diesel by over 100 per cent as compared to the three-quarter load figure of 73 per cent.

As we know, the efficiency of an internal combustion engine depends upon the compression ratio and compression pressure. The higher compression ratio and the higher compression pressure technically gives a higher efficiency. At anything less than full load, the spark engine is throttled, whereas the diesel is not.

The diesel engine with a compression ratio of 12:1 to 18:1 thus has far better efficiency than gasoline engines with compression ratios of approximately 6.5:1, even when both units are operating at the point of minimum fuel consumption. At partial throttle the diesel is even more efficient than the gasoline engine. This is due to the fact that the air intake manifold of the diesel is open to the atmospheric or supercharger pressure

(TURN TO PAGE 136, PLEASE)

More than 60  
successful ways to cut  
fleet maintenance costs



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"**H** EAVY DUTY" has a real meaning at Thompson Products. Many of the developments in metallurgy which have contributed so much to the marvelous progress and safety of aviation have been adapted to Thompson Products parts for use in heavy duty service on the ground. See your Thompson Products Jobber for these long-wearing precision truck, bus and tractor replacement parts.



**500-BRINELL CYLINDER SLEEVE**—Super Hard. Average service life 2½ times longer than conventional types. Original equipment in leading tractor and truck engines.



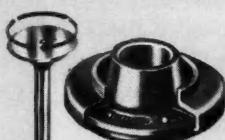
**BRAMBERY "CHARACTERIZED" CYLINDER SLEEVE**—bearing surface has diamond shaped pattern of grooves filled with carbonaceous oil absorbing compound which multiplies service life.

**U-FLEX OIL CONTROL PISTON RING**—An entirely new concept in oil ring design. Adopted by some of the biggest names in the heavy duty and car industries. Improved cylinder lubrication and oil economy for new and older engines.



**CHROME PLATED PISTON PINS.** The hard, mirror-smooth chromium plating doubles the life of these pins, and resists engine acids. Sold in matched sets.

**VALVE GUIDES,** Chrome-nickel alloy, burnished to require no reaming.

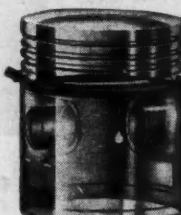


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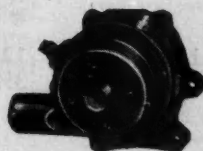


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# Thompson



# Products

CLEVELAND • DETROIT • LOS ANGELES • ST. CATHARINES, ONTARIO

## Fuel Economy

Continued from Page 134

at all times and a complete charge of air is drawn in on each intake stroke. Since the diesel draws a complete charge of air into the cylinders regardless of the throttle setting; the air is compressed to the same pressure on the compression stroke regardless of the throttle setting. The output and speed of the diesel are controlled entirely by the amount of fuel injected into each cylinder. The

	Average Fuel Consumption of Diesel Engine	Average Fuel Consumption of Gasoline Engine	Difference	Gasoline Consumption Exceeds Diesel Fuel Consumption by:
Full Load.....	.054	.092	.038	70.5%
¾ Load.....	.053	.092	.039	73.5%
½ Load.....	.057	.103	.046	80.5%
¼ Load.....	.065	.135	.070	107.5%

FIG. 5. Efficiency of diesel over gasoline engines when operating at ¾ speed

compression pressure of the air inside the cylinder of a diesel thus remains high at partial throttle and, consequently, the efficiency remains high at partial throttle. The gasoline engine, on the other hand, requires the use of a throttling device such as a butterfly valve in the intake system

to regulate the amount of air fuel mixture drawn into the cylinder in order to regulate the output and speed of the engine. This decrease in the amount of air-fuel mixture drawn into the cylinder under partial throttle operation results in lowered compression pressures and, hence, decreased efficiency.

Since the efficiency of the gasoline engine decreases much more rapidly than the diesel at partial throttle setting; the fuel economy of the gasoline engine depends upon proper engine application to a much greater extent than the diesel.

The engines compared on Fig. 2 are both approximately 175 hp. Assuming that the greatest amount of operation will occur at about 75 per cent of the maximum governor speed, at which the maximum horsepower is approximately 160; the fuel savings of the diesel are in Fig. 3, Page 130.

Assuming that gasoline costs \$0.20 per gallon and diesel fuel costs \$0.15 per gallon the dollar saving of the diesel over the gasoline is given in Fig. 4, Page 134.

Percentage-wise the diesel is much more efficient than the gasoline engine when operating at three-quarter speed. This comparison is shown in Fig. 5, above.

The figures presented here illustrate the fact that not only is the diesel more efficient than the gasoline engine when both are operating at the point of minimum fuel consumption, but that the diesel retains its efficiency over a much wider operating range than does the gasoline engine. This fact is important because it means that the proper application of the gasoline engine to the particular job at hand is much more critical than in the case of the diesel, if maximum fuel economy is to be attained.

Using a larger engine than necessary for the normal level highway operation in order to have more of a reserve of power available for handling the truck in traffic or over adverse terrain is also becoming important.

END

Please resume your reading on p. 73

## HERE'S WHY IMPACTOOL SALES ARE Zooming!

Under today's conditions, service managers and mechanics are buying only the tools and equipment they know will produce substantial savings in job time—which means more money earned. That's why they are buying Ingersoll-Rand Impacttools—the value is self-evident! That's why Ingersoll-Rand Electric Impacttool sales are zooming!



### Here are typical examples of Impactool savings:

- Installing spring clip nuts:  
16 minutes by hand wrenches.  
33 seconds by Impactool.
- Trailer panel and floor overhaul:  
5 days by hand screw drivers.  
2.5 days by Impactool.
- Wheel Rotation:  
35 minutes by hand wrenches.  
8 minutes by Impactool.
- Engine rebuilding:  
12 hours by hand wrenches.  
3½ hours by Impactool.

No Kick No Twist  
to Operator

No Motor Burn Outs,  
can't stall motor

Nut Running Time  
cut 90%

SEEING IS  
BELIEVING!

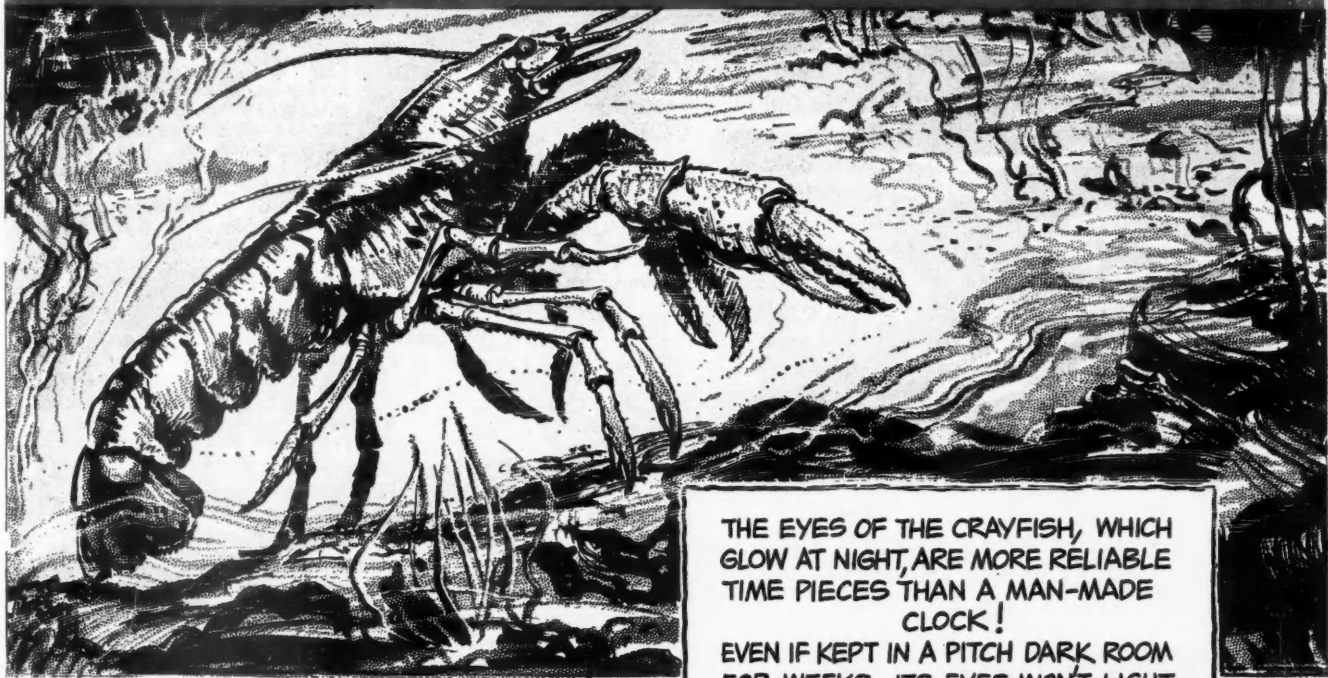
Call your I-R Jobber and ask for a demonstration of this amazing all-purpose electric tool.

**Ingersoll-Rand**  
11 BROADWAY, NEW YORK 4, N. Y.

526-18



# NATURE'S BEST IS TOUGH TO BEAT



THE EYES OF THE CRAYFISH, WHICH GLOW AT NIGHT, ARE MORE RELIABLE TIME PIECES THAN A MAN-MADE CLOCK!

EVEN IF KEPT IN A PITCH DARK ROOM FOR WEEKS, ITS EYES WON'T LIGHT UP DURING DAYTIME HOURS, BUT ONLY AT NIGHT!



## VEEDOL 90 H.D. STARTS WITH NATURE'S FINEST CRUDES MAKES A TOUGHER OIL

Naturally-tough Bradford, Pa., crudes give VEEDOL 90 H. D. the extra toughness of its fighting "Film of Protection." Every drop of VEEDOL 90 H. D. is refined at Tide Water Associated's ultramodern refinery at Bayonne, N. J. Here, scientifically-selected

additives are blended into these naturally stable oils to... reduce sludge and gum formation... protect bearings from corrosion... minimize lacquering of pistons and valve stems... *all* with full-throttle operation... under the toughest operating conditions!

100% BRADFORD, PENNSYLVANIA VEEDOL 90 H. D. CLEANS AS YOU DRIVE

**FEDERAL TIRES**  
"GOOD... for a long  
safe ride!"



**TIDE WATER  
ASSOCIATED  
OIL COMPANY**

17 Battery Place, New York 4, N. Y. • Thompson Building, Tulsa 2, Oklahoma • 79 Montgomery Street, San Francisco 20, Calif.

COMMERCIAL CAR JOURNAL, September, 1950

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# "SUCCESSOR TO GREASE" NEVER MELTS

## MULTI-PURPOSE LUBRICANT

**Plastilube called most  
important lubrication  
development in  
20 years.**

PLASTILUBE, the remarkable new multi-purpose, non-melting lubricant is today solving high-temperature and other lubrication problems for many of America's largest industrial and automotive users. In five short months, over 1000 concerns have tested and now specify this new product of The Warren Refining & Chemical Company, Cleveland.



One reason for PLASTILUBE'S sensational acceptance is the fact that it will not melt. The picture shows equal quantities of barium grease (left), lithium grease (center) and PLASTILUBE on a hot plate with a temperature reading of 345 deg. F. Note that the barium and lithium are melting rapidly while PLASTILUBE is unaffected.

In addition to the non-melting feature, PLASTILUBE possesses greater adhesion, excellent pumpability at low temperature, is exceptionally resistant to the washing action of water, and will not break down during working—allowing longer service life and consequent economy in use.

PLASTILUBE, "the successor to grease" is made by a radically new process combining Warren's I-45 and BENTONE (a product of National Lead Company). There is no comparable product on the market. It is rapidly being recognized as the most noteworthy development in lubrication since the first use of additives in motor oil twenty years ago.

For further information, samples, etc., write The Warren Refining & Chemical Co., Dept. CC-1, Cleveland 15, Ohio. (Advt.)

## Simple Switches

Continued from Page 82

central door switch located near the main work area, can control the closing of the doors. It is hooked up in such a fashion that one switch controls the closing of either all doors, a single door or any number of doors which happen to be open.

All the remaining doors in the garage are controlled by the switches located next to each door and red and green lights are incorporated in the door circuit.

In our operation we have installed the automatic opening and closing of the main entrance door through the use of a micro-switch circuit, to give the most satisfactory results. However, it is conceivable that on other properties it might be desirable to have several doors controlled automatically. There is nothing difficult in installing a micro-switch in this or any other stop-start circuit. The switch itself costs approximately \$2.25, which added to the labor of an electrical and a few incidental materials, results in a low cost improvement that is bound to pay dividends for a long time.

END

*Please resume your reading on p. 84*

## Chicago Orders 500 Propane Twins

An order for 500 51-passenger propane-fueled buses was awarded the Twin Coach Co. by the Chicago Transit Authority. The price of each bus was \$16,235 for a total value of \$8,117,500.

The order marks the first large entry of high octane propane-powered vehicles into the urban transit industry.

## "Wheel of Fortune" Contest

A \$1000 jackpot of prizes for truck drivers offered by the Fruehauf Trailer Co. is in its final stages, with deadline set for Sept. 30. Known as the Fruehauf "Wheel of Fortune" Contest, the competition is open to all tractor-trailer drivers for the best letters on any or all of the following subjects:

Improvement in trailer construction,  
Wider proportion of highway safety, and  
A better understanding of the vital necessity of trucking.

Entry blanks and full details are obtainable from all Fruehauf branches. There is still time to enter.

## Budd Wheel Distributors provide the same service described in this advertisement

AKRON—Motor Rim Manufacturers Co.  
ALBANY—Wheels, Incorporated  
ALBUQUERQUE—Wheels & Brakes, Inc.  
ATLANTA—Harris Automotive Service, Inc.  
BALTIMORE—R. W. Norris & Sons, Inc.  
BIRMINGHAM—Cruse-Crawford Wheel & Rim Co.  
BOSTON—New England Wheel & Rim Co.  
BUFFALO—Frey, the Wheelman, Inc.  
CHARLOTTE—Carolina Rim & Wheel Co.  
CHICAGO—Stone Wheel, Inc.  
CINCINNATI—Rim & Wheel Service, Inc.  
CLEVELAND—Motor Rim Manufacturers Co.  
COLUMBUS—Hayes Wheel & Spring Service  
DALLAS—Southwest Wheel, Inc.  
DAVENPORT—Stone Wheel, Inc.  
DAYTON—Rim & Wheel Service, Inc.  
DENVER—Quinn & McGill Motor Supply Co.  
DES MOINES—Des Moines Wheel & Rim Co.  
DETROIT—H. & H. Wheel Service, Inc.  
EVANSVILLE—Auto Wheel & Rim Service Co., Inc.  
FARGO—Wheel Service Company

"He Tr

FORT WAYNE—Wheel & Rim Sales Co.  
GRAND RAPIDS—Rim & Wheel Service Co.  
HARRISBURG—Standard Wheel & Rim Co.  
HARTFORD—Connecticut Wheel & Rim Co.  
HOUSTON—Southwest Wheel & Equipment  
INDIANAPOLIS—Indiana Wheel & Rim Co.  
JACKSONVILLE—Southeast Wheel & Rim Co.  
KANSAS CITY—Borbein, Young & Co.  
KNOXVILLE—Harris Automotive Service, Inc.  
LOS ANGELES—Wheel Industries, Inc.  
LOUISVILLE—Auto Wheel & Rim Service  
MEMPHIS—Beller Wheel, Brake & Supply Co.  
MILWAUKEE—Stone Manufacturing Co.  
MOLINE—Mutual Wheel Co.  
NASHVILLE—Beller Wheel, Brake & Supply Co.  
NEWARK—Automotive Safety Inc.  
NEW HAVEN—Connecticut Wheel & Rim Co.  
NEW ORLEANS—Southern Wheel & Rim Co.  
NEW YORK—Wheels, Incorporated  
OKLAHOMA CITY—Southwest Wheel, Inc.  
OMAHA—Morgan Wheel & Equipment Co., Inc.  
PEORIA—Peoria Wheel & Rim Co.  
PHILADELPHIA—Thomas Wheel & Rim Company  
PITTSBURGH—Wheel & Rim Sales Co.  
PORTLAND—Six Robblees', Inc.  
PROVIDENCE—New England Wheel & Rim Co.  
RALEIGH—Carolina Rim & Wheel Co.  
RICHMOND—Dixie Wheel Co.  
ROCHESTER—Frey, the Wheelman, Inc.  
SALT LAKE CITY—Henderson Rim & Wheel Service  
SAN ANTONIO—Southwest Wheel & Equipment  
SAN FRANCISCO—Wheel Industries, Inc.  
SEATTLE—Six Robblees', Inc.  
SOUTH BEND—Wire & Disc Wheel Sales & Service  
SPOKANE—Bearing & Rim Supply Co.  
SPRINGFIELD, ILL.—Illinois Wheel & Rim Co.  
SPRINGFIELD, MO.—Borbein, Young & Co.  
ST. LOUIS—Borbein, Young & Co.  
ST. PAUL—Wheel Service Co.  
SYRACUSE—Colbourn Wheel & Rim Service, Inc.  
TACOMA—Six Robblees', Inc.  
TOLEDO—Wheel & Rim Sales Co.  
WICHITA—Borbein, Young & Co.

## EXPORT

CLEVELAND—C. O. Bra 115, Inc.

## CANADA

CALGARY—Fisk Tire Service Ltd.  
EDMONTON—Alberta Wheel Distributors, Ltd.  
MONTREAL—General Automobile Equipment Ltd.  
TORONTO—Wheel & Rim Co. of Canada, Ltd.  
VANCOUVER—Wheels & Equipment, Ltd.  
WINNIPEG—Ft. Garry Tire Service Ltd.



*Treats Me As A Personal Friend...*

That's what Clyde Downie reports, after taking care of one of his customers with a change-over to wide base, tapered bead seat Budd wheels on a fleet of eleven 1½ ton trucks used in hauling asphalt. Clyde's a salesman for The Motor Rim Manufacturers Co., Cleveland, Budd Wheel distributors.

The change-over increased tire life by 30%, but the best thing, from the standpoint of the fleet owner, A. A. Rocco Trucking Company, was relief from the constant S.O.S. calls from his drivers, scattered all over Cuyahoga County, reporting blowouts and asking to have new tires brought out to them... with all the down time, delays and schedule-busting that entailed.

Mr. Rocco had to use the hard way to find out the improved economy and efficiency of operation that can be obtained by using the right combination of tires and Budd wheels. Why don't you try the easy way? Just call the Budd distributor near you, listed in the adjoining column. His advice won't cost you a cent.

The Budd Company, Detroit 14



# Diesels Promise Important Assets to the Fleetman

By Glen Shoemaker

Consulting Engineer  
Detroit Diesel Engine Div.  
General Motors Corp.

## Bennett Fleetmeter can solve your fueling problem

If you want speedy delivery, accurate accounting, convenient handling, dependable performance, or all of these—a Bennett Fleetmeter can solve your problem.

Fleetmeters are available in models with standard registers, with totalizers, for keeping count of fuel delivered or "ticket printer" models for exact inventory control. Both "standard" and "ticket printer" models are also made with heavy duty pumping units for faster delivery where required.

Let us help you solve your fueling problem—write today for detailed information. John Wood Company, Bennett Pump Division, Muskegon, Michigan.



**BENNETT FLEETMETER**

MODEL 789 Standard Fleetmeter with register and totalizer, and ticket printer. (Model 788 without ticket printer)



**JOHN WOOD** EST. 1867

THE FACT that there has been a steady increase in the number of diesel-powered trucks on our highways indicates that there are sound commercial reasons for their use in preference to other types of engines. The most obvious advantage is their well known saving in fuel, both in gallons and in price. The much publicized improvement in the fuel economy of spark ignition engines using high octane gasoline may have caused some operators to question the ability of the diesel engine to continue to maintain this important advantage. It is the fundamental nature of this advantage that we would like to review.

The diesel engine was created in the first place to take advantage of the well known thermodynamic law of internal combustion engines that the most work is obtained when the fuel is burned and expanded as much as possible. When the compression ratio was increased in an engine using a gaseous mixture, it was found that the fuel ignited of its own accord before the desired high compression pressure was reached and thus the efficiency was limited by the nature of the fuel. The whole history of the development of the spark ignition engine has been the problem of creating fuels and engines that will withstand higher compression without uncontrolled ignition of part or all of the charge.

On the other hand, Dr. Diesel found that the compression and expansion ratio could be raised very much higher if the fuel was sprayed into the air after it was compressed. As a result of the intense heat of compression the fuel would vaporize and burn as it was injected into the cylinder and without creating uncontrolled and excessive pressures. Thus by injecting the fuel at the end of the compression stroke the use of high compression and expansion ratios was no longer dependent upon the nature of the fuel. The compression and expansion ratios were entirely a matter of engine design to give the best overall engine efficiency. Besides, a good ignition system was included, free.

Here are several of the fundamental characteristics of the diesel engine that account for its excellent fuel economy:

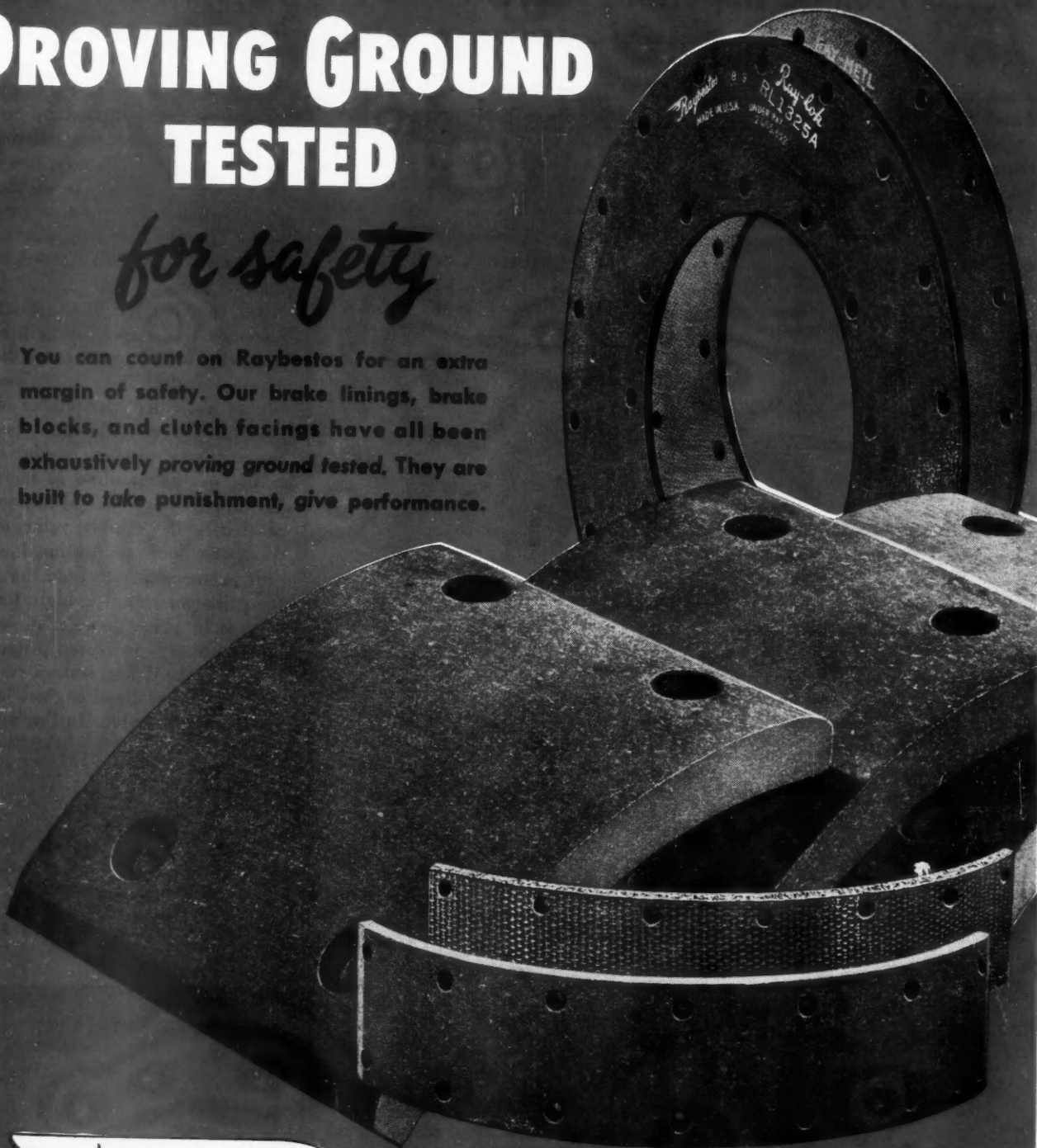
1. The work done on the piston by a given amount of fuel, or the indi-

(TURN TO PAGE 142, PLEASE)



# PROVING GROUND TESTED *for safety*

You can count on Raybestos for an extra margin of safety. Our brake linings, brake blocks, and clutch facings have all been exhaustively proving ground tested. They are built to take punishment, give performance.



 **Raybestos**  
Raybestos Division of RAYBESTOS-MANHATTAN, INC., Bridgeport, Conn.

**America's Biggest Selling BRAKE LINING**



RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Radiator Hoses • Fan Belts • Mechanical Rubber Products • Rubber Covered Equipment • Packings • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balls

# Diesels Promise Important Assets

Continued from Page 140

cated efficiency, is greater for the diesel engine than the spark ignition engine at all compression ratios attainable with present-day gasolines—5.5 to 7.5:1.

2. The proposed 12.5 compression ratio engine using 100 plus octane gasoline approaches but does not equal the efficiency of the corresponding high compression diesel engine.

3. There is a distinct loss in efficiency in most spark ignition engines due to the practical necessity for using over-rich fuel air ratios under many operating conditions.

4. The diesel engine operates with an excess of air throughout the whole load and speed range, or at the most efficient fuel air ratio.

5. The efficiency of the diesel en-

gine improves still further at part load due to its ability to run on very lean mixtures.

## Fuel Cost

Figures show the saving in gallons. This must be multiplied by any difference in fuel cost per gallon to get the true saving. Obviously, fuel prices vary from one locality to another and in accordance with petroleum price levels. In the long run, prices must maintain a reasonable relation to production costs.

On this basis it is reasonable to conclude that diesel fuel will always be cheaper than gasoline by the cost of converting diesel distillate to higher volatility and higher octane gasoline. The difference becomes progressively greater as the octane rating of the gasoline is increased. The lower limit of diesel fuel price is ordinarily the market value of distillates as domestic heating fuel.

It is interesting to note that when the price per gallon is high, this difference in price between diesel fuel and gasoline is increased proportionately and the dollar savings resulting from the use of diesel engines become even more attractive. In England, for example, the high price of fuel has resulted in the use of diesel engines almost exclusively for trucks and buses.

This combination of savings in  
(TURN TO PAGE 144, PLEASE)

# Zenith Instruction Program

## SPEEDS THE RETURN OF YOUR VEHICLES TO ROAD DUTY

Many costly schedule interruptions can be avoided if there is a skilled carburetor expert on hand to speed the return of your vehicles to road duty. That's why you should take advantage of the Zenith\* Instruction Program. Developed by factory experts from Zenith—the nation's foremost producer of heavy-duty carburetion—this short and thorough course schools your men in the techniques of faster, better carburetor maintenance. Supplementing the Zenith Instruction Program is this easy-to-work-from Package Repair Kit—containing every basic replacement part essential to expert, efficient carburetor maintenance. Contact your Zenith distributor or write the factory direct for more detailed information.



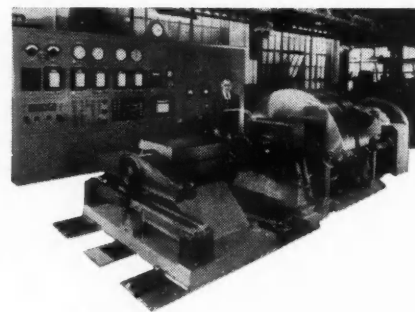
\*REG. U. S. PAT. OFF.

**ZENITH CARBURETOR**  
696 HART AVENUE • DETROIT 14, MICHIGAN

Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.

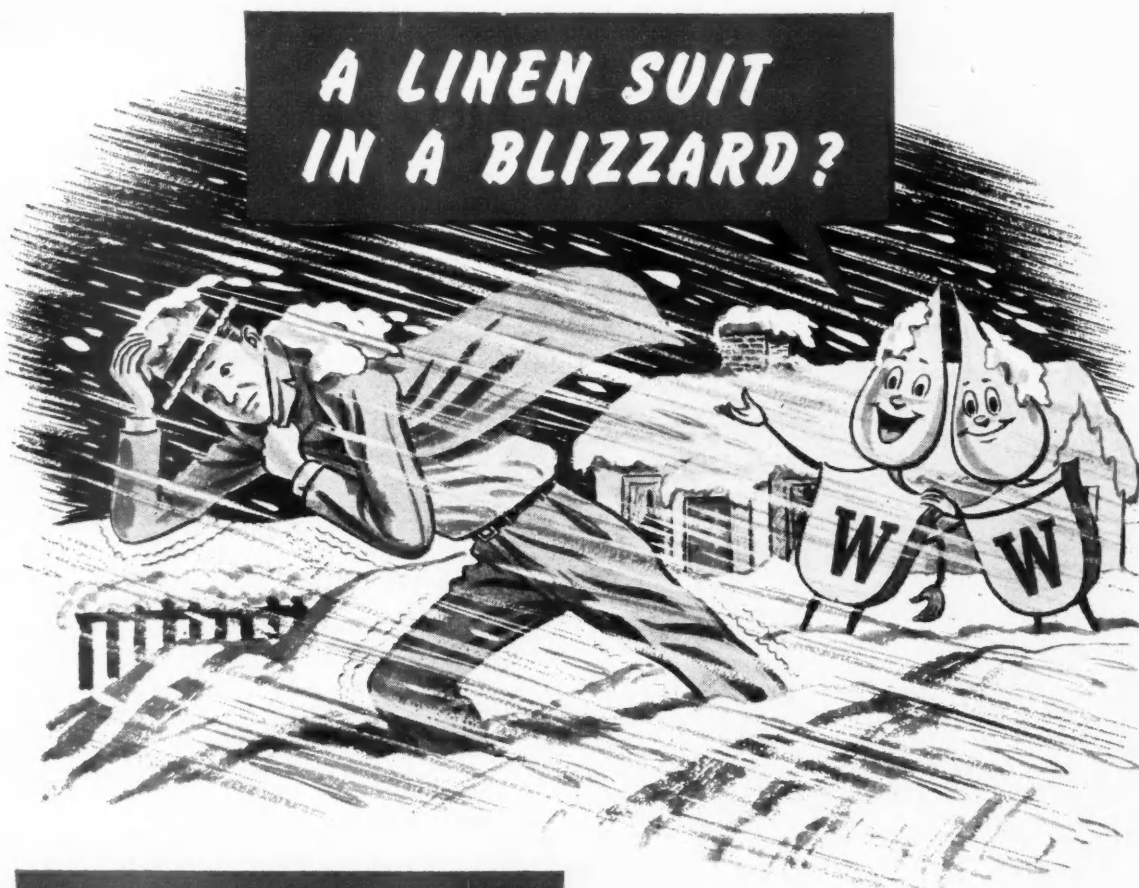


## Inertia Dynamometer Tests Brakes



Research, development and production checking of specific frictional and wearing characteristics of brake lining and brake blocks is accomplished on this large inertia brake testing dynamometer. Installed in the laboratories of the Raybestos-Manhattan, Inc., Passaic, N. J., the unit was built by Wm. R. Thropp & Sons Co. Main drive consists of a GE motor-generator set, amplidynes, electronic regulators and the forced cooled, 350-hp d-c motor. Maximum energy available to be dissipated by the brake is 34,500,000 ft-lb at 1500 rpm

## A LINEN SUIT IN A BLIZZARD?



### WHY, THE MAN HAS HOLES IN HIS HEAD!

You can't protect yourself against a mid-winter storm with a light summer suit . . . and you can't protect your fuels and lubricating oils with inadequate filters. It's as simple as that. Yet, there are some men who try. They try because they think they can save a few pennies, but instead of making a saving, sooner or later they lose their shirts . . . right out from under their linen suits.

When you're in the market for filters . . . it pays to ask a few questions. How much dirt will the filter actually stop? After it stops the dirt, can the filter hold it? Is the element designed to filter really *dirty* oil, or just *clean* oil? Is the element designed so that its surface will continue to provide efficient filtration over a reasonable period of time, or will it

quickly become clogged and coated and cease to serve its purpose? Is your particular job adequately performed by just one filter, or should it require more than one? And last but not least, are you getting the *right size* filter to give your equipment sufficient protection?

Winslow elements are built to filter *dirty* oil, to eliminate *the dirt that hurts*. They aren't laboratory filters. They are filters built for hard, day-after-day service in actual operation. They save you *dollars*, not *pennies*.

Winslow Filters eliminate the largest particles of dirt first, and then progressively catch and *hold* smaller particles as the oil passes inward toward the center core. There is no premature clogging, no buckling of the element, allowing dirty oil to by-pass it.

*If you are interested in complete safety and satisfaction, with lasting economy, write to Winslow today for further details.*



# **WINSLOW FILTERS**

AD W-502

**Winslow Engineering Company**

4069 Hollis Street • Oakland 8, California



## Diesels Promise Assets

Continued from Page 142

both gallons and cost per gallon in many operations amounts to about 50 per cent of the total gasoline fuel bill. For large trucks covering many thousands of miles per year this is an important item. As the truck becomes smaller and the mileage shorter, the savings decrease until the advantages of the smaller and cheaper automobile gasoline engines may warrant their

use. The point of equality depends upon how small and how cheap the diesel engine can be produced and upon the price difference in the two fuels. Engine size itself does not alter the fundamental advantages in fuel economy due to the high compression ratios of the compression ignition engine.

In addition to these most important advantages of power, fuel economy and fuel cost, there are a number of other features connected with the use of diesel engines which must be con-

sidered as being on the plus side and measurable in dollars. Most of these are quite obvious or have already been well substantiated in the technical literature. They will be enumerated without any other supporting evidence.

1. Safety of fuel due to absence of explosive vapors.
2. Less loss by evaporation and appropriation for private use.
3. Non-toxic exhaust.
4. Reduced effect of altitude.
5. Smaller heat loss to cooling system.
6. Instant response to throttle.

### Conclusions

At the present state of engine development the diesel engine is well ahead in fuel economy and at least equal in power per cubic inch of displacement.

Gasoline engines are limited in power and economy by the octane rating of the fuel. Higher octane means higher priced fuel.

Further improvements in the power and economy of diesel engines are possible with presently available fuels.

Diesel fuel is inherently cheaper than gasoline and contains more heat units per gallon.

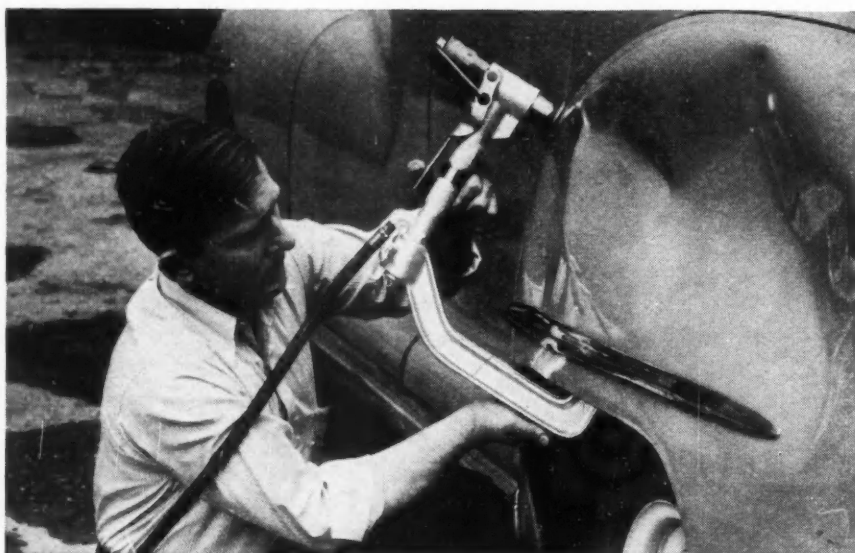
When the millennium arrives and spark ignition engines have high octane fuels available at the same price as diesel fuels and can operate at the same compression ratio, the compression ignition engines will still be ahead in fuel consumption by the higher efficiency obtainable at part load with very lean mixtures, and in power by the inherent ability to be supercharged and two-cycled.

END

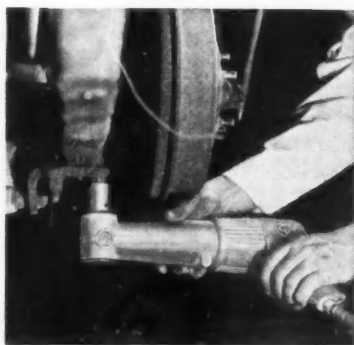
### FWD Sign Union Contract

Management of The Four Wheel Drive Auto Co. and Union Officials representing shop employees of the company signed a new three-year labor contract recently. Under the new contract, FWD shop employees will receive an immediate wage increase of five cents an hour, with subsequent improvement increases on an annual basis. There is also an escalator clause, providing for automatic wage adjustments based on cost-of-living trends.

In addition, hospitalization benefits to workers will be increased beginning January of 1951 with increased sundry expenses and surgical treatment benefits. Vacation pay will be based on a percentage of total earnings.



## a really smooth finish *fast*



For any nut on car or truck there is just the right CP Air Impact Wrench — in the world's *only complete line*—with angle heads for every size.

Not only do CP-528 Fender Irons smooth out dents, wrinkles and rough spots on car fenders and bodies, but they will do an equally good job on heavy truck fenders — because they have four times the power of light-hitting, high-speed tools.

A variable control provides a range of hammering action — from light ironing or smoothing operations on light passenger cars to heavy blows for the toughest truck fender jobs.

While the CP-528 does not replace the skilled workman in preliminary rough-out, it enables him to do a complete job in half the time otherwise required.

Write for  
Bulletin 1913



AUTOMOTIVE SERVICE EQUIPMENT • FENDER IRONS • ELECTRIC TOOLS  
AIR IMPACT WRENCHES • AIR COMPRESSORS • PNEU-DRAULIC PUMPS

# EDWARDS TRAILERS

*Ring the Bell with Bell Motor Freight*



"Proof of the pudding is in the eating. We've repeated on Edwards Trailers because they have proved an investment on which we can make a profit. There are some 20 Edwards Trailers in our fleet at the present time, including those we've just purchased," reports Bell Motor Freight of Kalamazoo, Michigan.

Fleet operators all over the country have made repeat purchases of Edwards Trailers after the first one has been put to work. Low

first cost, low maintenance cost and consistent performance on the highway are characteristics of the trailers in the Edwards line.

Heading the Edwards Line is the new Edwards Aluminum Trailer, that cuts useless dead-weight at no sacrifice in strength. It is the only trailer with a double strength frame. There is also a new all-steel standard panel trailer, a new corrugated trailer and a line of flats and trains. Check an Edwards before you buy.

## EDWARDS

TRAILER AND BODY COMPANY  
DIVISION EDWARDS IRON WORKS, INC.

EDWARDS TRAILER AND BODY CO.  
Dept. C-9 South Bend 23, Indiana.  
Rush data on ( ) Edwards Aluminum Trailers  
( ) Edwards Dealer Franchise

Name \_\_\_\_\_

Address \_\_\_\_\_

DEALERS: A LIMITED NUMBER OF EDWARDS FRANCHISES ARE AVAILABLE IN RESTRICTED TERRITORIES

## CCJ News Reports

Continued from Page 27

No floor discussion followed the individual papers (See page 72) this year. Instead all questions and comments were saved for the general session, when speakers were asked to prepare for questions from the floor. This session was one of the highlights of the week. Comments from the group of some 300 engineers and fleetmen indicated that this meeting, organized under the chairmanship of J. W. Sinclair, was highly successful, the program well-rounded and informative.

### U. S. Ratifies UN Road Convention

The United States has become the first nation to ratify the Convention of Road Traffic formulated by the United Nations Conference on Road and Motor Transport held last year. The Convention will enter into force in 21 countries when four more ratifications are deposited with the UN.

The Convention covers primarily international automobile traffic, but several an-

nexes are of extreme significance to the trucking industry.

The most important of these annexes relates to sizes and weights. The maximum axle load in the new treaty is fixed at 8 metric tons or 17,600 lb., slightly under the 18,000-lb. limit, advocated by the American Association of State Highway Officials, which has stirred up so much controversy in this country. Regional agreements calling for greater loads up to 13 metric tons are permitted. However, international road specifications are not expected to provide bridges and other structures to support these heavier loads.

Gross weight for any vehicle or combination of vehicles is fixed by a table based on distance between axles. The range of weights in this table is from 32,000 to 80,360 lbs.

Maximum dimensions set forth in the same annex are very close to U. S. Standards—width, 98 in., 12½ ft., length of a two axle truck, 33 ft., length of a two-axle bus, or of any three-axle vehicle, 36 ft., length of a tractor-semi-trailer, 46 ft., length of a truck and one full trailer, 59 ft., length of a truck and two full trailers, 72 ft. (This last measure would be barred by the AASHO recommendations which permit only one trailer—a limitation which is specifically recognized elsewhere in the convention.)

While for-hire operations are excluded from the new treaty, they eventually will require a separate treaty, according to the state dept.

### ATA Convention Cancelled

The American Transit Association's Annual Convention, scheduled for September 25-27 in Los Angeles, Calif., has been cancelled. "Problems arising out of the uncertainties of the international situation and the extensive war preparedness program" were given by ATA's Executive Committee as reasons for this move.

Replacing the convention will be an Emergency Executive Conference and Business Meeting at the Stevens Hotel, Chicago, Ill., September 18 and 19. No divisional meetings will be held at this time.

The Executive Committee also announced the appointment of a War Program Committee of which Harley L. Swift, president of Harrisburg (Pa.) Railways Co. is chairman.

### Reservist Deferments Under Revision

While the trucking industry was included in the essential list issued by the Defense Department in connection with the reservist deferment policy, no great comfort can be taken from this listing. It amounted to little more than the recognition that trucking and all other transportation has a definite place in the mobilization economy. This original list of essential activities was hastily drawn and in-

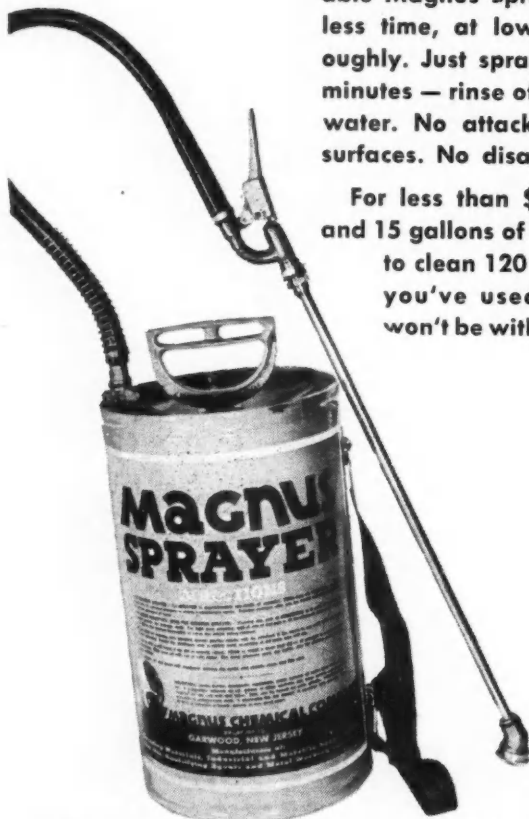
(TURN TO PAGE 148 PLEASE)

## Quick, Low Cost Cleaning of Engines and Chassis!

Why try to blast off grease and dirt from engines, wheels and chassis with slow-working, hot steam solutions?

Let Super-Magnusol and the handy portable Magnus Sprayer do the job in much less time, at lower cost and more thoroughly. Just spray it on — let soak a few minutes — rinse off with pressure stream of water. No attack on paint or aluminum surfaces. No disagreeable odor or fumes.

For less than \$35 the Magnus Sprayer and 15 gallons of Super-Magnusol (enough to clean 120 engines) are yours! Once you've used this combination you won't be without it. Order yours today!



MAGNUS CHEMICAL CO.,  
38 South Ave., Garwood,  
N. J. In Canada — Magnus  
Chemicals, Ltd., 4040 Rue  
Masson, Montreal 36, Que.  
Service representatives in  
principal cities.



**MAGNUS**  
CLEANERS • EQUIPMENT • METHODS



**FLEET OWNERS: Quality leads the way to lower costs!**

**USE ONLY GENUINE**  
**CHEVROLET**  
**PARTS**



The high quality of Chevrolet replacement parts can help keep your trucks on the road—and out of the shop! They can reduce both maintenance and operation costs . . . can play an important part in increasing the profits of your fleet.

Your local Chevrolet dealer stands “ready, willing and able” to assist you with your service problems . . . to supply you from his large and balanced stock of Chevrolet parts. Take advantage of your Chevrolet dealer's ability to help you.



**FOR YOUR BEST DEAL . . . DEAL WITH**  
**YOUR CHEVROLET DEALER**  
**FIRST FOR QUALITY . . . AT LOW COST**

## CCJ News Reports

Continued from Page 146

cludes practically everything except the obvious frills and fancies. It does not mean that deferments for reservists in the trucking industry will be easy to get; in fact, quite the opposite is true. At press time, the list of essential activities and critical occupations was being revised. The new list will be much narrower than the original effort and will apply alike to draftees, reservists and National Guardsmen.

### SAE to Discuss Leasing Problems

The Metropolitan Section of the Society of Automotive Engineers has scheduled a meeting on the subject of leasing vs regular ownership for October 5, 1950. Robert Gardner, of Lever Brothers has been named chairman. The Fleet Maintenance Association of New York has asked its members to be present since the discussion promises to be one of great importance to fleetmen. Others interested in the leasing problem are urged to attend.

### More Drivers Benefit

The expanded social security program which got underway this month includes in

its coverage for the first time agent-drivers or commission drivers engaged in distributing meat or bakery products, vegetables or fruit products, beverages (other than milk) or laundry or dry-cleaning services. The amended law will just about double present average benefits and extend coverage to an estimated 10,000,000 additional people. The current tax of 1½ per cent on employer and employee up to a worker's first \$3,000 earnings (\$3,600 after January 1) will be increased starting in 1954 until it reaches 3¼ per cent each by 1970.

### Industrial Notes

**Trailmobile** sales of \$21,770,028.66 during the first half of 1950, compared with \$13,009,407.92 during the same period in 1949, resulted in net profit after taxes this year of \$1,581,466.49, equivalent to 3.38 per share of common stock, George M. Bunker, president of **The Trailmobile Co.**, Cincinnati, recently informed company stockholders.

**Brown Equipment & Mfg. Co., Inc.**, manufacturers of tractors, trailers, and truck bodies, have moved their executive offices to the new Mutual Life Building, 1740 Broadway, New York 19, N. Y., JUDson 2-4366.

National sales of engine tune-up and testing equipment, manufactured by **Joseph Weidenhoff, Inc.**, Algona, Ia.—a subsidiary of Bowser, Inc.—are now being handled through the field organization of **Bowser, Inc.**, Fort Wayne, Ind.

A program to provide greater nationwide service facilities for small engine carburetors and fuel strainers has been announced by H. R. Schausten, president of the **Tillotson Mfg. Co.**, Toledo, Ohio.

**Whiting Corp.** has announced a new distributing policy for its Merchandise Sales Div. in which distributors are being appointed mainly from the ranks of the established firms among industrial distributors, hardware wholesalers and automotive equipment jobbers.

**Waldie and Briggs, Inc.**, Chicago has been appointed to direct a comprehensive advertising and sales promotion program for the Division.

A streamlined packaging and merchandising program for parts and accessories of the **Ford Motor Co.** is being introduced to approximately 6,500 Ford dealers throughout the United States.

The Ford parts and accessories sales department is presenting the program under a new name, **FoMoCo**.

Thousands of visitors, including leaders in Chicago's truck transport field, attended the opening of the **International Harvester Co.**'s newly built South Chicago branch. The new branch, number eight in the Chicago area, contains 20,000 sq ft of space and its service station is designed to handle trucks of any size.

(TURN TO PAGE 150 PLEASE)

**CUT REPLACEMENT COSTS WITH  
NEW POPULARLY PRICED**

*Joyce*

**LIFTMASTER  
SERVICE JACKS**



Model L-10D, two speed,  
10 Ton Capacity

Model L-4,  
single speed  
Model L-4D,  
two speed,  
4 Ton Capacity

Model L-2, single speed,  
2 Ton Capacity

New long-life features make Joyce Liftmaster Service Jacks last longer! They're built to take it and give you years and years of trouble-free service. The mechanism is completely protected from dirt and water. Extra rugged construction throughout and the new patented cam-action release control, which eliminates troublesome linkage, add years to Joyce Liftmaster Service Jacks normal life. When part replacement is necessary, it's economical and simple! Your used jacking unit can be traded in on a new low cost factory replacement. It's easy to install! Just pull two pins and replace! *Joyce Liftmaster Service Jacks are made in two, four and ten ton capacities, single and two speed models.* These, plus Liftmaster Axle Stands and Hydraulic Liftmaster Hand Jacks round out Joyce's complete jack line.

*You get all  
these Big Bonus  
Features too!*

- Roller Contact Between Handle and Piston . . . No Linkage!
- Handle Stands Up for Easy Storage!
- Roller Bearing Wheels for Easy Load Moving!
- Handle Locks in Three Positions for easy Maneuvering!

WRITE TODAY FOR DESCRIPTIVE LITERATURE!



**THE JOYCE-CRIDLAND COMPANY**

DESIGNERS AND BUILDERS OF LIFTING EQUIPMENT SINCE 1873  
DAYTON 3, OHIO, U. S. A.

IN CANADA: MIDLAND FOUNDRY & MACHINE CO., LTD., MIDLAND, ONTARIO

# "THEY NEVER MISS ...!"

by Gum

AS THE DAWN COMES UP LIKE THUNDER, MIKE, THE MILKMAN, COMES UP MRS. HILL'S 77 STEPS LIKE A TIRED MOUNTAIN GOAT...



AND WHAT DOES HE FIND WHEN HE GETS THERE? A LOVELY NOTE NO LESS...



Copyright 1950, Prest-O-Lite Battery Co., Inc.

## No guess-work with Hi-level

Look how you benefit . . .

- ★ **70% LONGER AVERAGE LIFE**—in tests conducted according to S.A.E. Life Cycle Standards.
- ★ **LESS SERVICING**—reduces time and bother of servicing and checking batteries.
- ★ **GREATER LIQUID RESERVE**—needs water only  $\frac{1}{3}$  as often as batteries without the Hi-Level feature.
- ★ **FIBRE-GLASS MATS**—help prevent "shedding"—one of the major causes of battery failure.

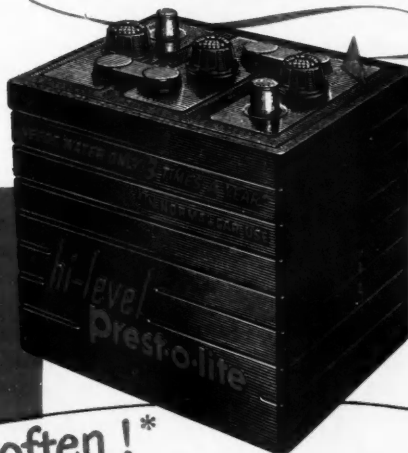
Find how Hi-Level can help end battery grief, cut costs for you. See your Prest-O-Lite distributor for complete information or write to

**PREST-O-LITE BATTERY COMPANY, INC.**  
Toledo 1 Ohio

**prest-o-lite**  
*hi-level battery*

... needs water only  $\frac{1}{3}$  as often! \*

Investigate the  
Prest-o-lite hi-level Battery



\*As batteries without the Hi-Level features.



## CCJ News Reports

Continued from Page 148

Technicians in the Mechanical Goods Development department of the Goodyear Tire and Rubber Co. announce addition of a special mildew inhibiting agent to the materials used in production of v-belts.

Appointment of the Mack Trailer and Truck Mfg. Co., Detroit, as Mich. dealer in the truck and trailer field for Nailable Steel Floors is announced by the Great Lakes Steel Corp. Steel Floor Div.

Fram Corp., Providence, R. I., has announced the beginning of construction on a new subsidiary plant at Greenville, Ohio, to be utilized both by Fram Corp. and its associate company, the Mason Can Co.

Establishment of an Automotive Diesel Div. of Lancaster Engineering Corp. which will specialize in the installation of "on-highway" diesel truck engines was recently announced.

A lower gear shift shaft take-up bushing, No. 465, has been developed by Champ-Items, Inc., St. Louis, Mo. Designed to give easier and more positive gear shifting, the unit will fit all 1940-49 Chevrolet cars and trucks.

END

Please resume your reading on p. 31

## 1950 Domestic Motor Truck Factory Sales by G.V.W.\*

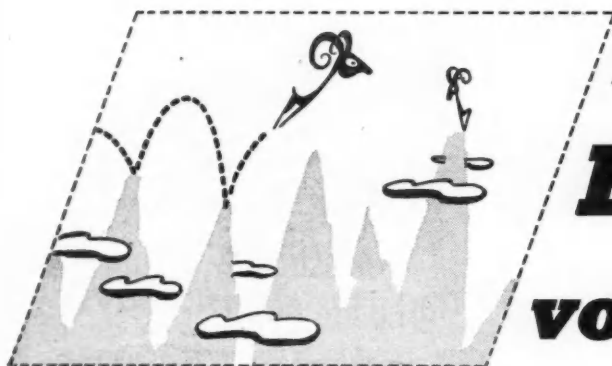
	5,000 lb. and less	5,001-10,000	10,001-14,000	14,001-18,000	18,001-26,000	26,001-35,000	Over 35,000	Total
January.....	39,252	19,251	6,804	13,093	2,680	1,816	1,482	84,378
February.....	39,629	17,151	6,032	11,739	2,720	2,157	1,511	80,939
March.....	47,828	20,921	7,200	14,644	3,580	3,474	2,062	99,809
April.....	46,375	19,025	5,884	12,971	3,391	3,322	2,326	93,294
May.....	52,805	21,935	7,468	16,721	4,077	3,598	2,393	108,997
June.....	58,892	24,249	8,158	18,488	4,104	3,507	2,838	120,236
Total—6 Mos. 1950.....	284,781	122,532	41,546	87,656	20,652	17,874	12,812	587,853
Total—6 Mos. 1949.....	222,514	147,893	42,569	89,445	15,596	10,535	7,695	536,247

\* Automobile Manufacturers Association.

## 1950 Truck Trailer Shipments\*

	Jan.	Feb.	March	April	May	Total 5 Months
Vans						
Insulated and refrigerated.....	201	214	253	335	322	1,325
All other closed top.....	1,463	1,748	2,018	1,971	2,254	9,454
Open-top.....	207	242	322	286	311	1,368
Total—Vans.....	1,871	2,204	2,593	2,592	2,887	12,147
Platforms						
With cattle and stake racks.....	101	78	82	105	124	500
With grain bodies.....	39	34	61	30	41	205
All other.....	364	460	663	657	718	2,862
Total—Platforms.....	504	572	816	792	883	3,567
Tanks						
Petroleum.....	227	223	325	265	263	1,303
All other.....	13			22	17	52
Total—Tanks.....	240	223	325	287	280	1,355
Pole and logging						
Single axle.....	73	82	75	93	99	422
Tandem axle.....	49	27	73	70	104	323
Total.....	122	109	148	163	203	745
Low-bed heavy haulers.....	77	89	139	167	172	644
Dump trailers.....	37	27	41	70	88	263
All other trailers.....	186	182	211	223	252	1,054
Total—Trailers.....	3,037	3,406	4,273	4,294	4,765	19,775
Trailer chassis.....	114	145	212	193	217	881
Total—Trailers and chassis.....	3,151	3,551	4,485	4,487	4,982	20,656

\* Industry Division, Bureau of the Census.



precise and rugged as a mountain goal

# BLUE STREAK voltage regulator

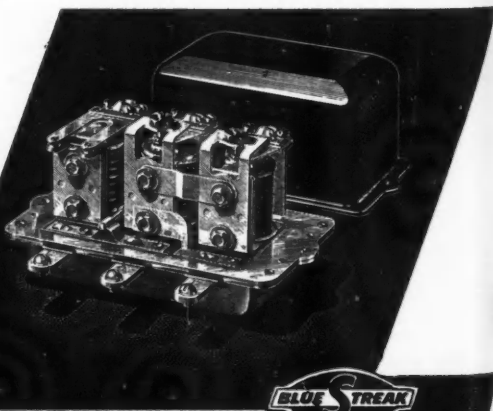
**EXTRA CONTACTS:** The current load is divided between 2 contacts to reduce burning and pitting. Ordinary regulators have only 1.

**PERFECT ALIGNMENT:** Current and voltage contacts are *screwed*—not riveted—to their brackets; permits perfect gap adjustment without distorting or bending parts.

**RUGGED FIELD RESISTORS:** Instead of fragile, brittle materials used in ordinary resistors, Blue Streak uses non-warpage, non-cracking, heat-resistant fibre glass. Rugged field resistors mean longer life regulators.

**COMPLETE PROTECTION:** Safety insurance for you and for the regulator comes from the carefully covered under-surface. Ordinary regulators are completely exposed at the bottom.

Test Blue Streaks yourself in your own vehicles.



**STANDARD MOTOR PRODUCTS, INC.**

37-18 Northern Boulevard Long Island City 1, New York

# "50% TO 80% Longer Wear from this Gates Truck Belt"

**A**s a fleet owner yourself, you know how carefully the big operators keep records on every detail of operational cost—and Frehofer Baking Company is no exception.

With many, many trucks in the extra severe "stop and start" delivery service that puts heavy, **additional** strains on a TRUCK BELT, Frehofer Baking Company says—and **says it in writing**:—"We are getting 50% to 80% longer service from GATES TRUCK BELTS."

This longer service represents, of course, a substantial saving in belt costs—but note that they call attention to a much **bigger saving** that results from the longer and **better** service delivered by GATES TRUCK BELTS. They say:—"This is also tied in with the elimination of road

**service calls—and that really means a lot in lower cost of operation."**

Thousands of other users of GATES TRUCK BELTS will tell you the same story. A few names of big users are published on the preceding page. Just ask any one of them how GATES TRUCK BELTS are cutting down the delays encountered by them for belt servicing on the road!

A reduction in road delays pays you bigger dividends than almost any other thing you can do. It prevents disappointment to your customers who may be waiting anxiously for the delivery of important shipments. And—most important of all—it increases the **net operating time** of your units, which is, after all, the one thing that pays you a profit!

Because of the proved gains in operation time the Gates TRUCK Belt is giving other successful operators—in addition to very substantial savings in belt costs—we believe that starting TODAY, you will want to insist on having Gates TRUCK Belts on your TRUCKS and BUSES.

**The GATES RUBBER COMPANY**

DENVER, U. S. A.

World's Largest Makers of V-Belts

*Specially Engineered for Trucks & Buses*

**LOOK for this**

**T\***

Look for the letter "T" on the belt itself—as well as on the label—of every belt you buy for truck service.

"T" means that the belt has been specially engineered for TRUCKS and BUSES. It has a tough, multiple ply cover of more than double durability—and is also built with high-tenacity RAYON cords of immense tensile strength!

You can be sure of getting the belt designed for the very severe TRUCK service only by seeing to it that you are delivered belts which bear this letter "T".

\*REG. U.S. PAT. OFF.

## At Your Service

Continued from Page 14

ing down of the head, improper cooling such as hot spots in the water jacket.

Careless installation can account for defective gaskets, when mechanics fail to clean the machined surfaces of either head or block, when studs are pulled down too tightly, thus stretching the head, when studs "bottom" and fail to pull the head down snugly. Even after proper installation cylinder head studs should be rechecked periodically and especially after the newly overhauled engine has been broken in. A torque wrench, of course, is necessary and manufacturers' recommended procedures should be used in pulling them down.

This is all old stuff to most mechanics, but there are always some who save a minute and lose an engine during this service. Remember, next time, diagnose the cause of blown gaskets before you button her up.

### Pistons for Problem Engines

It has come to our attention that many fleet operators—especially bus fleets—are experiencing a great amount of top ring trouble. CCJ in April page 6 discussed this problem with piston ring manufacturers, and some sound recommendations were offered by leading engineers. It would appear, however, that there is still another method of improving engine life under heavy-duty conditions, and piston manufacturers have

come up with what seems to be a practical answer to the problem of top ring groove wear and resultant piston failures.

This is the bi-metallic molecular bonded piston designed to eliminate failures from wear, burning and erosion in the ring area, particularly at the top ring groove. Fairchild Engine and Airplane Corp. developed this process and has licensed it to six manufacturers in this country and abroad. Without doubt this premium-priced heavy-duty armored piston is one answer to recurring piston failures.

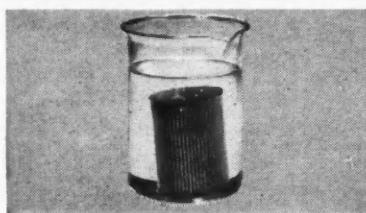
It is recognized that fully 80 per cent of piston wear is localized around the top ring grooves. This is due to exposure to heat of combustion, to the corroding gases produced by combustion, to abrasive wear from dust and from lack of adequate lubrication. This piston is produced with a cast iron band bonded to the aluminum core at the section where the rings seat. Reinforced in this manner they are said to offer several advantages over mechanical bonded types. At the same time they offer the lightness of aluminum at a cost between 10 and 20 per cent over standard pistons. Operational data shows that where problem engines were originally giving 25,000 miles for a standard aluminum piston, the life can be extended to up to 200,000 miles with bi-metallic pistons.

Bi-metallic pistons might well be considered for most diesel engine applications, for high-powered gasoline engines and for other engines that cannot be redesigned economically to eliminate typical piston problems resulting from detonation and high temperature.

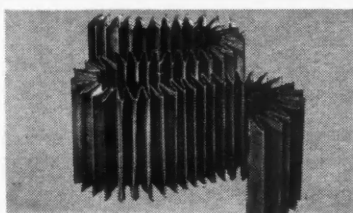
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Please resume your reading on P. 20

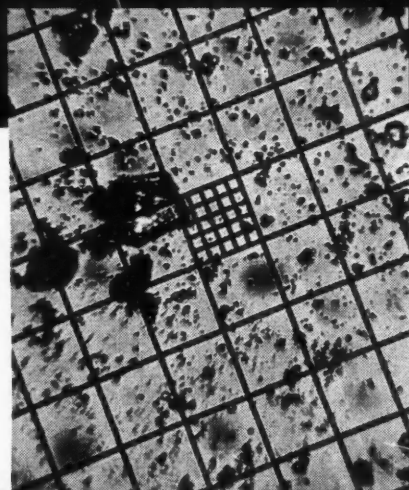
## Here's why Purolator is standard on more types of engines than all other oil filters combined!



**Resists Destructive Crankcase Acids!**  
Also heat and warping. Immersion tests prove it. Element in Purolator Micronic\* Oil Filter is made of cellulose specially impregnated with plastic.



**10 Times Greater Filtering Area!**  
Revolutionary accordion-pleated design. Area up to 10 times old-style filters. More than 10 feet of filtering surface in 3 3/8 inches diameter!



**Filters Micronic\* Particles!** In tests made with approved Test Dust containing graded dust ranging up from one micron (.000039 inch) Purolator removed 97.8% on first pass-through.

### and that's not all!

Purolator Micronic\* Oil Filter not only protects engines by removing all the sludge and abrasives from the oil . . . but unlike many other types of filters it leaves in the oil important additives some other filters take out.

Cut your refill bills, reduce downtime, engine repairs. Your supplier has a Purolator Micronic refill unit for practically every make vehicle or original filter. Phone or see him today for full information.

\*Reg. U. S. Pat. Off.

PUROLATOR PRODUCTS INC., Rahway, New Jersey and Toronto, Ontario, Canada





# Bus Maintenance 30.5 Man-Hours

Continued from Page 55

ties studied. The accompanying table is merely a condensation of the many facts reported. Properties interested in the full details should apply to ATA.

Despite the thoroughness and great detail of this study, it still is impossible to establish an invariable rule, or any ideal maintenance setup, from the findings. In an endeavor to do this, COMMERCIAL CAR JOURNAL's editors have worked up averages for all 73 properties. It was hoped that these figures would contribute to the work of the Small Operations Steering Committee to produce some sort of a common denominator or consolidation of the facts reported. In offering these, CCJ's editors caution against the use of these figures as a yardstick for measuring any property. As the footnotes of the table will show, there were too many factors that could not be resolved, and too many operational differences within the industry to permit any hard-fast rule.

However, CCJ's summary of the facts reported does bring out the following interesting points: The 73 properties operate a total of 4479 buses. Their average age (considering the fact that fleet No. 73 did not furnish information on the age of its vehicles) is 6.2 years. While some properties have but one make of bus in their fleets, and others as many as six, the average is approximately three makes of vehicles per property.

All the reporting properties operate a total of 14,270,565 miles per month, or an average of 195,487 miles per property per month. These properties employ approximately 2300 employees in the maintenance department, 56.0 per cent of whom are mechanics. The

mechanics service approximately 3.5 buses per man. The entire maintenance staffs of all properties expended a total of 457,459 man-hours in the maintenance of their fleets. These man-hours average 6267 per property, resulting in a ratio of 30.5 man-hours per 1000 miles operated.

Because it was impracticable to summarize maintenance facilities on a per-

centage basis, a median of the practices followed by the 73 properties was determined. This showed that 77.8 of the maintenance work by the reporting fleets was handled in their own shops and 22.2 per cent was farmed out, indicating that the properties, in general, were well equipped to do their own maintenance work. In this connection, it should be noted that the principal type of work farmed out is specialized unit rebuilding.

END

Please resume your reading on P. 56



"I SEE HERE by the *Servis Recorder* chart," said the boss, putting his finger on a "gap" in the truck's travel line, "that Steve stopped somewhere, from 2:15 to 3:30 yesterday. Now, he started out with a full afternoon's schedule—and yet, although the truck stood idle somewhere *for over an hour*, he reports in *on time*. He certainly must have **SPEEDED UP!** And that is both dangerous and wasteful."

## Dangerous

Insurance companies say that most ACCIDENTS are due to speeding, and most speeding is due to trying to "make

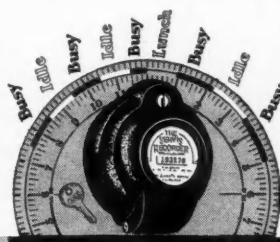
up" lost time. That's why many insurance companies recommend that fleet owners equip their trucks with *Servis Recorders*.

## Wasteful

Also, speeding wastes GAS—often ruins TIRES—and doesn't do the MOTOR any good. Now, even when delays are *not* the driver's fault, he is naturally tempted to "cover up" by speeding to get in on time.

*You can't afford that risk! Send today for our folder, "How to Prevent Trucks from Speeding and Having Accidents." It's free.*

THE SERVICE RECORDER CO.  
1375 Euclid Ave., Cleveland 15, O.



## The Servis Recorder

Tells Every Move Your Truck Makes

## Thompson Acquires Ramsey Corp.

Outright purchase of the assets of the Ramsey Corp., one of the largest piston ring producers in the auto parts replacement field, was announced recently by F. C. Crawford, president of Thompson Products, Inc.

At the same time it was announced that J. H. Coolidge, vice president and treasurer of Thompson Products, had been elected president of the new subsidiary.

Other new officers include J. A. Ramsey, vice president and general manager; H. M. Ramel, vice president, manufacturing; O. C. Holaday, vice president, sales; M. W. Marien, vice president, engineering; W. H. Chamberlain, secretary; E. E. Stuart, treasurer; and J. A. Fox, comptroller, all of whom are directors.

# Sales Language Sells Safety

Continued from Page 53

to earn enough money to pay for a crumpled fender, they are amazed. For additional emphasis, we point out that this does not include indirect costs, such as loss of time from the job, wasted clerical time in filing the reports, and other miscellaneous expenses.

We emphasize continuously that even more important than the dollar cost of accidents is the hazard to life and limb.

This hazard, we point out, is reduced in proportion to the reduction in the number of accidents.

## 1950 is "Challenge Year"

RESULTS for 1949 were so satisfactory that it was decided to carry on the same campaign for this year. The accident rate reduction was so good

that it presented a direct challenge to equal or excel the record for 1950.

The enthusiasm engendered by the idea spread throughout the organization, and gained top prestige and importance when the challenge was officially made by General Foods' chairman of the board, Clarence Francis, on 1949's last coast-to-coast broadcast of the "Aldrich Family" radio program. At that time, Mr. Francis congratulated the sales division on its 1949 safety record and its contribution to public safety. He expressed confidence that the record doubtlessly could be improved during 1950.

To take advantage of such an auspicious start for 1950, we keyed January as the "Challenge Month." A bulletin was sent immediately to all salesmen containing, in brief, the following message:

"Salesmakers, you have the challenge:

"It is up to you to accept it in the spirit in which it was issued, and carry it to a successful conclusion.

"Remember; 'Challenge Month' is the month you will drive your car without a preventable accident."

While January was not an accident-free month, it broke all records for that period, and started the year off in high gear.

For the first six months of 1950, an additional improvement has been made. The accident rate compared with 1949 shows a further reduction of 7.2 per cent.

END

Please resume your reading on p. 54



## The One and Only

Thermoid Custom-Built Brake Lining is the one and only brake lining carrying the nationally famous Pittsburgh Testing Laboratory Seal—which certifies the lining in the package is absolutely correct for the brakes with which the car or truck is equipped. Thermoid makes a complete line of specially engineered linings for every car, bus and truck application. For maximum safety, less maintenance, and low operating costs, specify *Thermoid* brake lining—recognized everywhere as "the safest thing on wheels."



# Thermoid

Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Clutch Facings • Car Mats • Thermoid Precision Process Equipment.

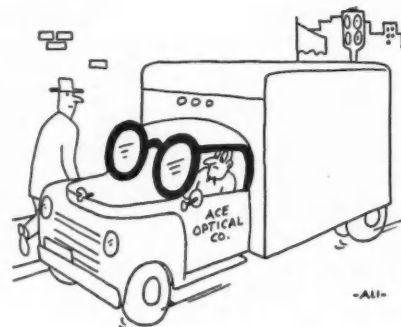
Thermoid Company

Trenton, N. J.

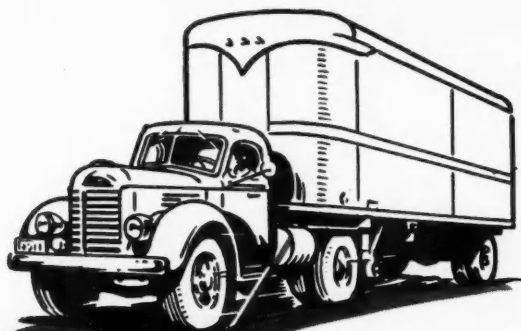
## Freight Volume Up 3.6 Per Cent

The estimated volume of freight transported by motor carriers in June increased 3.6 per cent over May, and 25.8 per cent over June, 1949.

Comparable reports received by ATA from 302 carriers in 42 states showed these carriers transported an aggregate of 4,164,432 tons in June, as against 4,020,397 tons in May and 3,311,137 tons in June, 1949.



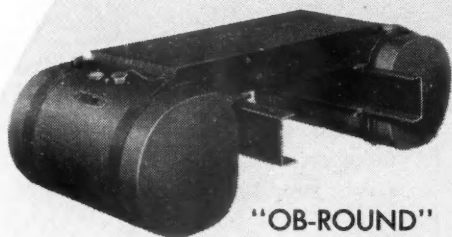
**FOR GASOLINE  
OR DIESEL FUEL**



# *Prior* **SAFETY TANKS**

**....A STOCK SIZE TO FIT EVERY NEED  
OR WE BUILD TO MEET YOUR REQUIREMENTS**

By use of Prior Safety Tanks, truck operators throughout the country have found a way to shave operating and maintenance costs and thereby add to profits. These attractively engineered tanks have all modern safety tank features, including: sufficient capacity to permit the driver to fill up at home at bulk prices; fuel supply lines that are removable for cleaning; quick installation by clamps with no welding or holes to be drilled in frame; and the tanks hug the frame and stay well within rear tires.



**"OB-ROUND"**  
LIGHT IN WEIGHT

75 to 100 pounds per set weight savings over other tanks of equal capacity

**PRIOR PRODUCTS, Inc.**

Box 7608, Dallas, Texas • Box 349, Middletown, Ohio

**SEPARATED TANKS RELIEVE STRAIN AND ELIMINATE SEAM CRACKING**



**"MILEAGE  
MASTER"**

Either tank unit replace-  
able in event of collision.



# Gasoline Engine Offers Advantages

Continued from Page 73

\$2200.00, and the diesel \$3110.00 bare and with accessories \$3480.00.

It will require between 50,000 and 65,000 miles, for the diesel fuel saving to offset this initial engine cost difference, not to mention any other extra cost items on the diesel truck. The above are typical of one manufacturer only, making both types, and the spread be greater on others.

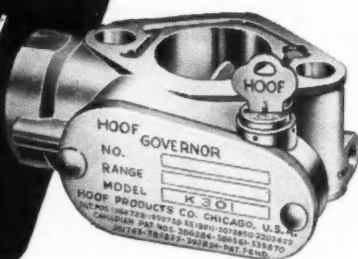
Gasoline type engines are being improved continually for greater horsepower per cubic inch, less weight per cubic inch, improved gasoline economy, better oil consumption, and higher speeds. The compression ratios are being increased to take advantage of the continual, even if slow, increase in octane rating. This results in both increased horse-

power and better fuel economy. However, it requires improved valves; lots of intakes are now made of former exhaust materials and the exhaust valves are being improved to withstand the greater heat of increased compression ratio and more sustained speeds near full throttle, by stellite facing, rotators, sodium cooling, or combinations of these. Exhaust valve inserts are of non-growth, heat resisting steel, often stellite faced. Higher speeds are attained by better intake and exhaust porting, manifold design, hardened counterbalanced crankshafts, and high capacity rod and main bearings — often copper-lead, the same as used in the higher loaded diesel bearings.

The gasoline engine also can be converted or built originally to use LP fuel (liquified petroleum), or commonly called, butane-propane mixtures. At the prices being mentioned presently, much lower than gasoline, fuel economies can about equal the over-all diesel fuel economy. However, this price trend, like that of diesel fuel, may approach that of gasoline, in the future years. However, there are other advantages in using the desired increase in compression ratio by one to two ratios and a cold intake manifold for better volumetric efficiency: a gain in horsepower from the same engine, no dilution of the lubricating oil, longer periods between lubricating oil changes, less frequent lubricating oil filter changes, and longer engine life, particularly of the barrels or sleeves and rings, due to no dilution of oil at the upper end of the piston stroke. The dry gas entering the combustion chamber is the best type of fuel from an engine wear and maintenance standpoint, as evidenced by 10,000 to 15,000 hours before overhaul of oil field engines operating on natural gas, but also at about 70-75 per cent load. This brings to mind that I must mention that engines for truck service get the most severe loading and speed conditions that we or any of the other engine companies build for. You and we would all be pleasantly, as well as profitably surprised, at the decrease in trouble and longer life if the maximum loading could be held to 80 per cent maximum of the power available, except for short periods of 20-30 minutes at a time and also for averaging

(TURN TO PAGE 162, PLEASE)

**DID YOU KNOW  
THAT HOOF  
GOVERNORS**



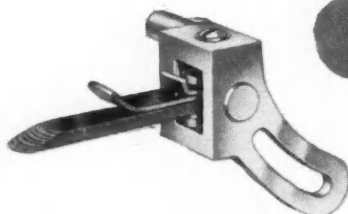
... give you Full  
power right up to  
governed  
speed

... costs no more  
than a couple  
of tanks of  
gas

... save you more  
money in repairs and  
maintenance than any  
other investment you  
can make

**MAKE  
US  
PROVE  
IT**

**WRITE FOR THE FULL  
HOOF STORY TODAY!**

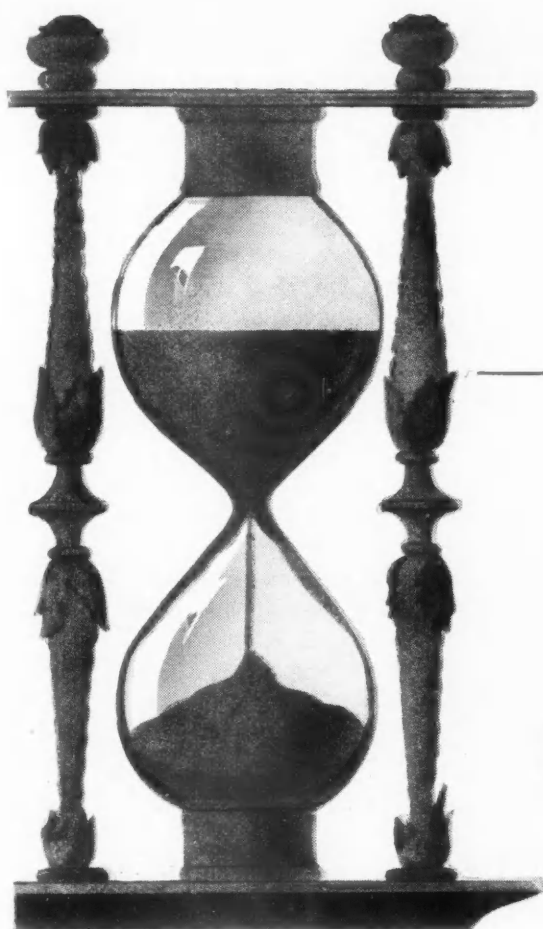


A Patented, exclusive Hoof feature, this Cantilever Spring means more accurate speed control, simplified construction and longer life!

**HOOF** *key and  
seal type*  
**GOVERNORS**

**HOOF PRODUCTS CO.**

6543 S. Laramie Ave., Chicago 38, Ill.



**For  
Longer  
Life**



## **USE QUAKER STATE SUPER QUADROLUBE**

**A POWERFUL, EXTREME-PRESSURE LUBRICANT,** Quaker State Super Quadrolube is expressly designed for the heavy-duty lubrication of hypoid gears and double-reduction rear axles. It embodies all the unparalleled qualities of 100% pure Pennsylvania base oil.

To help keep your equipment on the road more—in the shop less, give it complete Quaker State Lubrication Service.

### **A COMPLETE LINE OF FINEST QUALITY LUBRICANTS**

- Quaker State Super Quadrolube
- Quaker State Viscous Lubricant
- Quaker State Wheel Bearing Lubricant
- Quaker State EXPP2 Lubricant
- Quaker State Universal Joint Lubricant
- Quaker State Waterproof Lubricant
- Quaker State Quadrolube

## Gasoline Engine

Continued from Page 160

age flat running at about 80 per cent of maximum speed permitted.

Availability of gasoline versus diesel fuel, I think, is a very decided factor in favor of gasoline engines. On a recent vacation tour through the Southwest I had trouble finding, not only pumps, but towns and cities that

had diesel fuel. I know the truck drivers know the locations, but guess I did not get in the right spots! Such a trip also brings home the wide spread in prices, not only in gasoline, due to state taxes and transportation, but between gasoline and diesel fuel—not to mention the price cutters, so I cannot help but sympathize with you truck owners and operators and the problems you have, especially on interstate hauls. What we need is more uniform licensing, taxiing, and

traffic laws, as well as a five-cent cigar!

Probably it is only natural that the operators of fleets with both gasoline and diesel equipment, who have reliable fuel and oil cost data, as well as maintenance costs, should be reluctant to divulge their information. The Four Wheel Drive Auto Company prepared operating cost data per mile on gasoline powered trucks operated by the Clintonville Transfer Lines, using 320-404 cu in. engines, about twenty-five vehicles, for a three-year period.

Average loads: 6.0-6.3 tons per trip.

88,000-110,000 miles per year.

MPG are 5.5. Showing total cost per mile of 6.4-6.7 cents, which is divided as follows:

Fuel Cost	47.8%
Lubricating Oil	3.3%
License and Insurance	8.9%
Depreciation	8.0%
Tires	10.0%
Repair Parts	13.3%
Repair Labor	8.7%

Fuel economy, in the amount used per horsepower (not the cost per gallon), is the only justifiable reason for a truck diesel. This inherent saving on a diesel engine is about 20 to 25 per cent over gasoline, to which at the present can be added the difference in cost per gallon, varying from three to eight cents, and any saving in fuel tax.

Lighter frames and bodies are being used to offset increased diesel engine weight, but don't forget this same weight saving can also be applied to gasoline engine trucks.

Sufficient miles, estimated at a minimum of 60,000 a year, and tons, say over 40,000 lbs. GVW, must be hauled, so that the fuel cost saving will warrant—

A. Increased truck cost, due to engine cost, starting accessories, battery, etc.

B. Loss of payload due to heavier engine.

C. Increased capital investment and taxes on same.

END

Please resume your reading on p. 74

## New Continental Engine

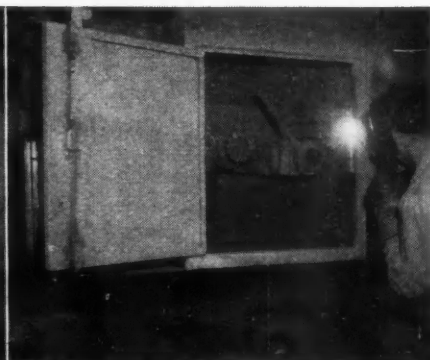
Continental Motors has a new engine coming along which will be announced within a couple of months. It is understood that it is to be in the K series.

## TIME SAVER

### Fleetwelder speeds repairs of all kinds



**Repairs Trailer Frame**—This fleet operator burns out the old rivets and then bolts the spring bracket to the side channel. The spring bracket is then fillet welded permanently to the frame with Lincoln "Fleetweld 5".



**Modifies Tank Truck**—A sheet metal cabinet welded directly to the truck body prevents tampering with valves. This is typical of how you can alter your present equipment to suit your needs.

**Ideal For Fleet Repairs**—To speed maintenance jobs like those shown above, Lincoln's 200 amp. AC "Fleetwelder" so simplifies repair welding that even mechanics who have never welded before quickly become proficient welders. That's because "Fleetwelder's" Arc-Booster starts the arc automatically, the instant the electrode touches the work . . . eliminates bothersome electrode sticking so common on other AC welders.

**Handles Wide Range of Work**—With "Fleetwelder's" broad current range, any repairman can produce high quality welds faster on heavy parts like frames and axles. On light body work too, Lincoln's stable arc at low currents cuts time by reducing the danger

of burn-through . . . cuts distortion and simplifies body soldering and finishing.

**Sells For Less**—NEMA rated 30 to 250 amps., "Fleetwelder" can use rod as small as  $\frac{3}{16}$ " and still has ample reserve capacity to handle  $\frac{1}{4}$ " electrodes . . . yet sells for less than any welder of comparable capacity. Operates on single phase power.



**LINCOLN**  
**"FLEETWELDER 200 A.C."**  
 with amazing "Arc-Booster"  
 pioneered by Lincoln

Send for free Bulletin 1301 on "Fleetwelder 200 A.C.", write  
**THE LINCOLN ELECTRIC COMPANY**  
 Dept. 324, Cleveland 1, Ohio

Sales Offices and Field Service Shops in All Principal Cities



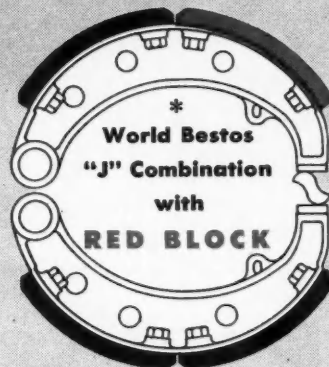


# Brake Fade Eliminated with **WORLD BESTOS RED BLOCK**



Mr. Donald B. Hamill, driver, and Mr. Harold Collier, owner of the "260" Brockway-Trailmobile rig, report top performance with World Bestos RED BLOCK.

Unretouched photo of RED BLOCK in the "J" Combination shows no sign of wear after 6 months of continuous mountain service!



Guaranteed **NO FADE**  
(HEAT OR WATER)

## Amazing RED BLOCK in the "J" Combination\* Completely Solves Fade Problem for Large Eastern Fleet

Collier's Truck Service, Uniontown, Pennsylvania, operating heavy duty units in mountainous eastern states, formerly had difficulties with fading brakes and wornout blocks. Since equipping with World Bestos RED BLOCK Mr. Collier reports, "We haven't had a single case of *brake fade* and are getting twice the *mileage* between relines. It is without a doubt the finest brake block I have ever used."

The sensational new World Bestos RED BLOCK . . . the only heavy duty brake block with a *no-fade guarantee* (Heat or Water) . . . was developed especially for trucks, trailers, and buses in extremely severe service. Assures high friction, long life and reduced heat checking.

Read what Fleet Operators across the country say about its amazing performance:

### MIDWEST:

"Not a single case of brake fade nor any evidence of heat-checked brake drums. RED BLOCK really solves the trucker's biggest brake problems!"

(Signed) V. T. Johnson, Garage Supt.  
Ziffirin Truck Lines, Inc.  
Indianapolis, Indiana

### WEST:

"Our fleet operates over the long steep grades of the Rockies and the Sierras. World Bestos RED BLOCK has eliminated fading and heat-checking problems completely."

(Signed) Ronald Norton, Owner  
Norton Fruit Company  
Provo, Utah

### WEST COAST:

"90% of our operation is over heavy-traffic mountain grades and brake fade is quite a problem. World Bestos RED BLOCK has eliminated fading, reduced drum wear, and increased brake life one-third."

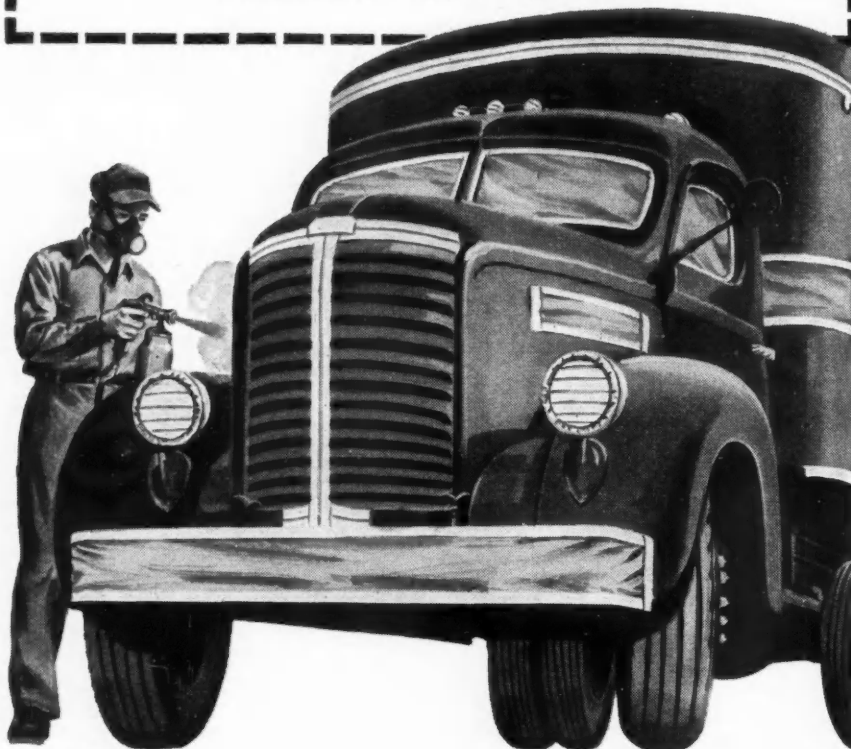
(Signed) Cecil Z. Green, Mtn. Supt.  
Western Milk Transport  
Pacoima, California

**RED BLOCK** gives perfect braking efficiency under the most severe operating conditions



• If your jobber cannot supply you write directly to World Bestos for complete information.

# PERMACEL Tape SPEEDS REPAINT JOBS...SAVES "OFF-THE-ROAD" TIME... PROTECTS YOUR PROFITS!



## 6 REASONS WHY

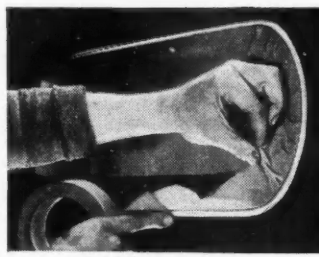
**Permacel-77 helps fleet owners  
SAVE MASKING TIME, CUT COSTS!**

1. Comes off roll easier, quicker!
2. Maximum "Quick-stick"!
3. Stronger!
4. Conforms to tightest curves!
5. Faultless, accurate striping!
6. Strips off cleaner, easier!

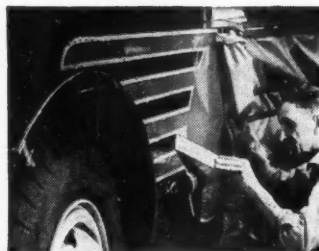
**SEND FOR THIS FREE ILLUSTRATED BOOKLET!**



Twenty-five pages of masking procedure, complete with description of the PERMACEL Portable Masker. Write Dept. 11-S at the address below.



Permacel-77 "Stretch" makes curves easy—speeds masking on windows of buses, cars, trucks.



Permacel-77 strips off easily, quickly—leaves no residue on painted surfaces.

# Permacel-77<sup>®</sup>

## MASKING TAPE

INDUSTRIAL TAPE CORPORATION • NEW BRUNSWICK, N. J.

## Eaton Electric Shift

Continued from Page 84

clicking, disconnect the green wire from terminal (a) and again clip the test light to terminal (a) on the circuit breaker. If the light fails to show here and did show on terminal (d), the circuit breaker is defective.

If the test lamp glowed normally at point (a) next remove the two wires (b) and (c) from the axle shift unit and connect a test lamp wire to one of these wires and the other to the ground. The red shift lever switch and the black wire should light the lamp only in the low gear or down position of the gear shift lever switch. If the light fails to glow in either of the above tests, it indicates a broken circuit in the harness or gear shift lever switch. If both wires light the test lamp, it indicates a short circuit in the harness or gear shift lever switch.

Next connect the test lamp to the speedometer terminal (c) and ground. Here the test lamp should glow in the low gear or down position of the gear shift lever switch only. If it fails to glow, it indicates a broken circuit in the harness or gear shift lever switch.

When checking the harness for short or open circuits, watch for broken insulation and do not overlook the gear shift lever switch which can best be tested by substituting a new one. If the vehicle shifts normally but the speedometer adapter fails to operate properly, make the above check with the test lamp to see if it is getting current in the low range and if it is, replace the adapter. When the trouble has been traced to the shift unit, disassemble and inspect parts.

The automatic switch (serviced only as an assembly) should have clean, free moving points which close firmly under spring tension. The drive screw (serviced only as an assembly) should turn freely by rotating the screw while holding the nut. When the nut gets to the end of the screw, the screw can continue to turn but the nut should not jam or run off the end. By turning the screw in the opposite direction, the nut will go to the other end and stop as before while the screw can continue to be turned.

The fiber bumper in the nut should be a tight press fit. Be sure in assembly that this fiber bumper is in toward the switch.

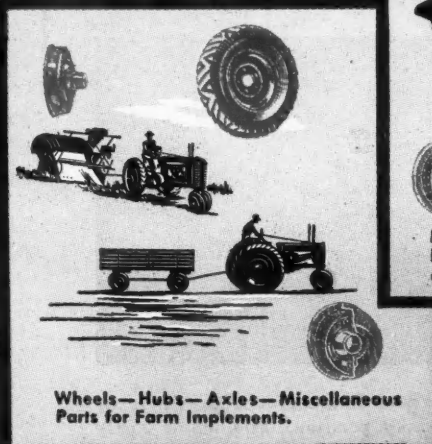
The motor Fig. 6 (serviced only as an assembly) is reversible so that with the motor housing connected to one battery terminal and either one of the two motor wires connected to the other

(TURN TO PAGE 166, PLEASE)

*known for*



**Wheels—Hub and Drum Assemblies—  
Brakes—Vacuum Power Brake Units for  
Passenger Cars, Trucks and Buses.**



**Wheels—Hubs—Axles—Miscellaneous  
Parts for Farm Implements.**



**Matched Wheel, Hub, Drum and Electric  
Brake Assemblies for Light Commercial  
and House Trailers.**

**8 KELSEY-HAYES WHEEL COMPANY PLANTS:**

4 KELSEY-HAYES PLANTS IN MICHIGAN

McKEESPORT, PENNSYLVANIA • LOS ANGELES, CALIFORNIA  
DAVENPORT, IOWA • WINDSOR, ONTARIO, CANADA



# Trouble Shooting the Eaton Electric Shift

Continued from Page 164

battery terminal, the motor will run in one direction. With the other motor wire connected to the battery, the motor will run in the opposite direction.

The motor has a stall torque of not less than 4 in. lb. The way to check this motor is to put a small crescent wrench on the rectangular drive on the armature shaft. Hold the wrench in one hand, hold the motor itself firmly in the other hand or in a vise and then

connect one motor wire to a battery terminal and connect the motor housing to the other battery terminal. The wrench should then tend to turn with a torque or pull of about 4 in. lb. Allow the wrench to turn very slowly, making sure that this pull or torque is present the full 360 deg. turn of the wrench. If one armature winding of the motor is burned out, this torque will disappear for a small part of the 360 deg. While

making this test, care should be taken not to overheat the motor. This motor is lubricated and sealed for life.

## Lubrication

THE speedometer adapter requires no more attention than would be required by the speedometer or the speedometer cable. Several drops of light oil should be applied in the provided oil-wick cups.

On the axle shift unit, there is an oil filler plug, so marked, provided in the front cover near the bottom. Upon installation, the unit should be filled level with lubricant and should be checked every 10,000 miles or 3 months, whichever comes first, to maintain this level.

The lubricant used should be SAE 10 motor oil, except where temperatures below 0 deg. F. will be encountered, in which case use 3 parts SAE 10 motor oil to 1 part kerosene. This cold weather mixture can safely be used in temperatures up to 32 deg. F.

To change lubricant, remove front cover (26) and drain. Whenever front cover is removed, care should be taken not to allow any dirt to enter.

END

Please resume your reading on P. 90

Comptroller Discovers  
Lower Maintenance Costs With . . .

## Stewart-Warner's New Electronic Wheel Balancer!

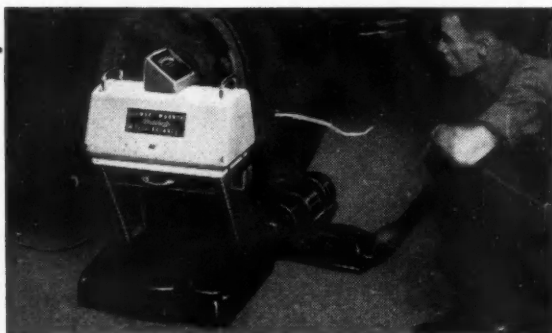


Here's what Mr. G. W. NAVILLE, Comptroller of Huber & Huber Motor Express, Inc.,\* says—

"At Huber & Huber, wheel balancing is essential to the operating efficiency of our 553 vans and tractors. Since we began balancing wheels right on the truck with Stewart-Warner's Electronic Wheel Balancer we have cut the time required for this operation more than in half. Found our maintenance costs considerably lower as a result."

\*Louisville, Kentucky

Shown at right is the new Electronic Stewart-Warner Wheel Balancer in action on the right front of one of Huber & Huber's heavy hauling units.



**IN MINUTES**, this new *Electronic Wheel Balancer* checks single or dual, front or rear wheels—in *true, running position!* You avoid costly repairs, replacements and "downtime" in *advance!* And you increase driving comfort and safety.

Vibrations and pounding on front-end assemblies, tie rods and bushings are eliminated—without removing the wheels from the vehicle. Degree of unbalance is quickly, accurately registered up to 2/1000 of an inch by this easy, Electronic method.

**Write today** for complete *free* information on this easy-to-use unit, produced by Stewart-Warner only. Address Dept. D-90 for rapid reply.

**Stewart-Warner Corporation**

Dept. D-90, 1828 Diversey Parkway, Chicago 14, Illinois

## Governors' Conference Urges Legislative Programs

At the 1950 Governors' Conference on Highway Safety and Motor Truck regulation, held in White Sulphur Springs, W. Va., governors from 46 states studied a 184-page report concerning safety and regulations, submitted by the Council of State Governments.

This report, requested by the Conference in 1949, contains proposals for uniform traffic laws and control devices, improvements of administration, standards for driver licensing, support for highway policing, improved traffic courts, highway planning and engineering, motor vehicle sizes and weights, highway tax and fiscal policies.

The Conference recommended that each of the states establish an agency or commission to study the report and develop a program dealing with the problems and make it available prior to the convening of the next legislature for action.

It was recommended that the size and weight limitations contained in standards of the AASHO be enacted and adhered to by all states. However, no present size and weight restrictions should be permitted pending completion of road capacity and surface strength tests now being made. (For data on one such test, see "Maryland Road Test Gets Underway," CCJ, July, 1950, Page 54; Sept., 1950, Page 64—Ed.)

Since existing highway tax sources, at present rates, will not be adequate in many of the states, it was further recommended that thorough studies be made of highway tax structures, and equitable tax increases be considered.



**LOOKING FOR THE  
TOP PERFORMER?**

**CHOOSE**  
**PACKARD**  
**LOW TENSION**  
**CABLE** *with*  
*"249 compound"*

You have a top performer when you stock and use Packard low tension cable with amazing "249 compound" insulation. This protective insulation, enclosed in Packard's well-known braid and lacquer exterior, makes Packard cable superior to all other low tension automotive cable.

Packard low tension cable has greater DIELECTRIC STRENGTH, GREATER RESISTANCE TO CHEMICALS, OILS, ABRASION, EXTREME TEMPERATURES and it will not HARDEN and CRACK. "249 compound" insulation lasts longer, will not support combustion. And what's really important in the shop . . . Packard low tension cable strips easily and cleanly to save time and trouble.

**DID 'YA KNOW?**

Packard low tension cable with "249 compound" was proved by test to be better than ordinary low tension cable by these percentages:

HIGH TEMPERATURE, 67% increase  
DIELECTRIC, 70% better  
CRUSHING, 67% stronger  
ABRASION, 130% tougher  
OIL, 125% increase

And only Packard low tension cable has all these plus features at no increase in price.

*Packard Pete*



*Packard*  
REG. U.S. PAT. OFF.  
TRADE MARK

Packard Electric Division, General Motors Corporation  
Warren, Ohio

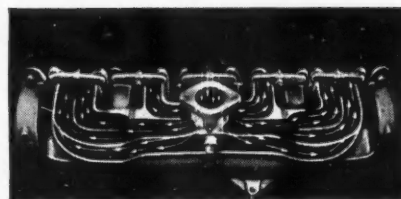


**FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING**

# Continental Ups Compression Ratio to 6.4-1

RECENT design improvements and changes in the Continental T-6427 gasoline engine have combined to effect a marked increase in output, better per-

formance, and extended service life. Readers of CCJ are familiar with the basic features of this engine as described some time ago. And it may be

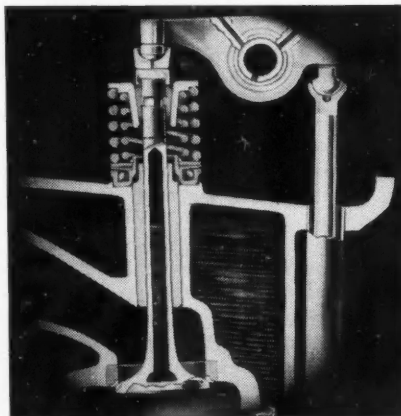


*Individual porting assures uniform supply of fuel mixture to all cylinders*

noted that in major specifications and external appearance the engine remains the same.

However, taking into account the changes to be mentioned below as well as an increase in compression ratio from 5.85 to 6.4 to 1, the revised version is capable of operating at higher speeds and will deliver 163 Bhp (max.) at a governed speed of 2800 rpm. Too, maximum torque is now of the order of 342 lb ft at 1400 rpm. These are gross output figures taken from the power curves.

Continental has adopted positive exhaust valve rotation as standard equipment. In addition, exhaust valves are of larger diameter, sodium-cooled and Stellite-faced. Automatic heat control also has been added. Another item of importance is use of a high output camshaft for the revised model.



*Sodium-cooled, stellite-faced exhaust valves with larger heads are used in conjunction with rotating mechanism*

Two optional features supplement the new design elements noted above. One is the availability of duplex downdraft carburetion; the other is a chromium-plated top ring. Both will be supplied when specified, at extra cost.

**END**

## Spencer Trailer Sold

As of August 14, all the producing assets of the Spencer Trailer Co., Inc., of Augusta, Kan., were transferred to the newly organized firm, Spencer-Safford Loadcraft, Inc. Heading the new firm will be E. S. Safford, as pres. and gen. mgr., who will take active charge of the new corporation's activities, with Fred G. Spencer to become a member of the Spencer-Safford Loadcraft board of directors.

## Factory Installed

At "factory installed" prices you get this Bostrom Hydraulic Seat, the ultimate in truck seating, at lowest cost.

*In These Trucks:*  
 International • GMC  
 Diamond T • Peterbuilt • Dart  
 Federal • Walter • Oshkosh • Duplex  
 Ward La France • Coleman • Reo  
 Hendrickson • Sterling  
 Available • FWD



**BOSTROM**

**HYDRAULIC** shock absorber and suspension mechanism of the Bostrom seat soak up jolts and jars. Steel frame and bonded rubber pad last the life of the truck. Mechanism moves in rubber—requires no oiling. Fore and aft adjuster accommodates all drivers. Seat coverings are replaced in 10 minutes—eliminating upholstery jobs.

*For truck part numbers consult  
your truck dealer or write:*

**BOSTROM MFG. CO.**

Milwaukee 4, Wisconsin

*Costs a little more  
at the start...  
costs a lot less in  
the long run.*



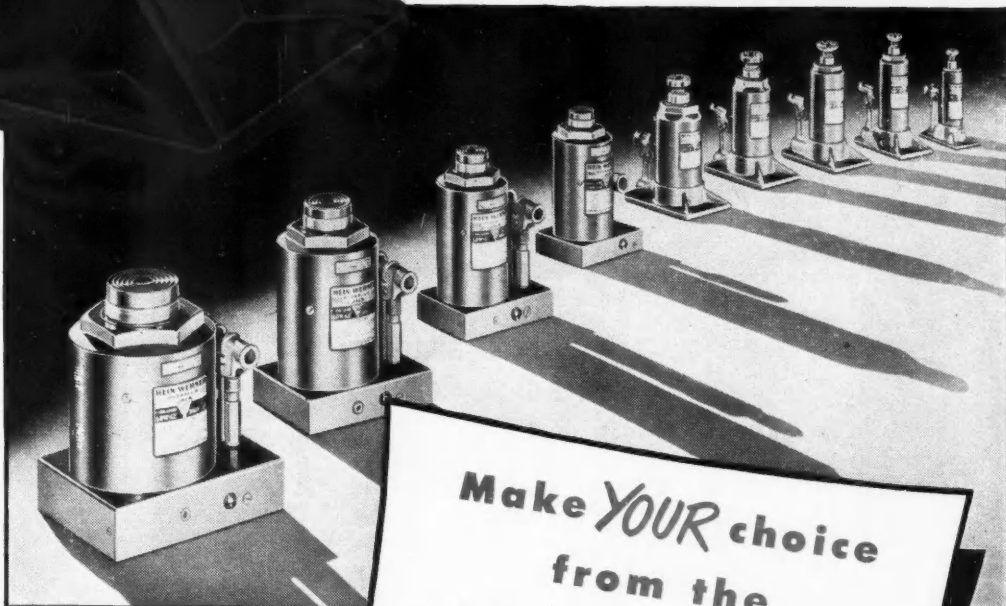


**"You said it...**

**here's a  
real jack  
for truck drivers"**



- ★ Sturdy
- ★ Compact
- ★ Safe
- ★ Dependable
- ★ Powerful
- ★ Easy-operating
- ★ Factory tested at 1½ times rated capacity



Take a tip from thousands who speak from experience—you can't beat a Hein-Werner Hydraulic Jack. Every model in the H-W complete line is built right and priced right.

Hein-Werner also manufactures "Bumper-Lift" Hydraulic Jacks for passenger cars . . . "Swift-Lift" and Service Jacks for shop use . . . Cylinder Sleeve Pullers . . . and "Push and Pull" Hydraulic Jacks for body, fender and frame work.

Ask your jobber or write us for details.

Make *YOUR* choice  
from the  
complete line of

**Hein-Werner**  
HYDRAULIC JACKS

Available in models of 1½, 3, 5, 8,  
12, 20, 30, 50 and 100 tons capacity

**HEIN-WERNER CORPORATION • WAUKESHA, WIS.**

## Introducing . . .

Continued from Page 90

... Two new regional managers and additional changes affecting the branch managership of seven branches of the Fruehauf Trailer Co. A. G. Russ, former branch manager at Cincinnati moved up to the post of regional manager of the Great Lakes region. F. L. BROWER, former branch manager at Memphis became regional manager of the Southeast region.

The post vacated by Mr. Russ has been filled by E. W. ROBERTSON, former branch

manager at Scranton, Pa. The Memphis vacancy has been filled by J. R. HAYGOOD, former branch manager at Jackson, Miss.

Other changes are: I. F. NELIS, to be branch manager at Houston, Tex.; H. M. QUINN, to be branch manager at Jackson, Miss.; H. A. GOWDY, to be branch manager at Louisville, Ky.; L. F. PLUMMER, to be branch manager at New Orleans; ROBY C. MILLER, to be branch manager at Norfolk, Va., and E. C. FLETCHER, to take over the Scranton branch.

... E. J. KULAS, president of the Midland Steel Products Co., who announced that W. A. MCKINLEY, vice president in charge of engineering, will take over the sales divi-

sion of Midland and in the future will be designated as vice president in charge of sales and engineering RALPH NEWBY has been appointed sales manager of the company's Cleveland division. ELMER LANG has been appointed sales manager of Midland's Detroit division.

... ALFRED K. BURKE, director of production of the Finishes Div. of the Du Pont Co., who retires July 1, after more than 35 years with the company. LYMAN H. FRIDAY, assistant director of production, will become director of production, and DR. HAROLD E. GOLDSMITH, now regional sales manager at Boston, assistant director of production.

... C. A. HULSEMANN, appointed manager of Industrial Brake Sales Dept., Aviation Products Div., Goodyear Tire & Rubber Co.

... JOHN B. KING, named plant manager of the Highway Trailer Co.'s plant at Cincinnati.

... ALPHEUS S. HOLMES, formerly Eastern region manager of AC Spark Plug Co. named manager of the Pacific Coast region to succeed the late Eugene B. Powell. EDWARD F. HANLON, formerly zone manager in the Eastern region, succeeds Holmes.

... HERBERT C. DARROCH, vice president and general manager of Fruehauf Trailer Co. of Canada, Ltd.

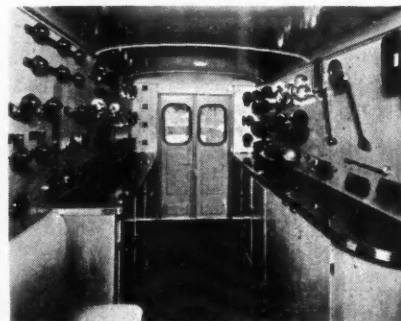
... H. H. HURST, regional fleet sales manager at San Francisco, transferred to the Pacific regional office at Oakland and L. L. BRAFFORD, appointed regional fleet sales manager in the Southern regional office at Memphis for the General Motors Truck & Coach Div. of the General Motors Corp.

... ROBERT N. BLACK, appointed as supply manager of Borg-Warner International Corp.

END

Please resume your reading on P. 92

### Sparton Safety Display



Interior of first of specially designed safety trucks equipped with complete display of automotive safety equipment by Sparton Automotive Div. of the Sparks-Withington Co. of Jackson, Mich. The trucks will be used as part of a campaign to raise safety standards in states and cut accidents



## POWER TAKE-OFF Universal Joints

**Built for long service.**

**High capacity.**

**Lightweight.**

**Complete range of bore sizes.**



1500-1600 series  
standard length.

### NEAPCO 1500-1600 SERIES TYPES

**STANDARD LENGTH** (shown above): 5" long, needle roller and plain bushing types.

**8" SLIP LENGTH:** needle roller and plain bushing types. This joint and the standard length satisfy most all needs for single joints and drive shaft assemblies.

**UNWELDED CENTER ASSEMBLY:** employs splined slip stub and 1 1/4" O.D. tubing. Can be cut to size. End yokes supplied separately.

**TELESCOPING DRIVE SHAFTS:** square and rectangular shaft and tubing. Clamp type and quick disconnect yokes to fit all standard tractor PTO shafts.

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No matter what kind of oil filter you have, the filter element is the part that does the work.

AC builds highly efficient elements especially designed for any oil filter—elements that will keep your engine oil "Dirt-Proof" for thousands of miles. They prevent dirt and sludge from clogging rings or sticking valves—they keep grit away from moving parts.

That's "Dirt-Proofing." More and more fleet owners are buying AC Replacement Elements in preference to any others. They find that "Dirt-Proofing" saves them time and money, because it ensures *safe* lubrication at all times.



AC SPARK PLUGS   AC FUEL PUMPS  
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AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

COMMERCIAL CAR JOURNAL, September, 1950



# Tire Supply Is Adequate

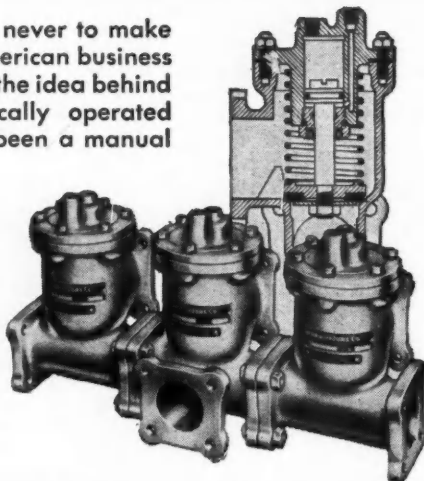
Continued from Page 74

beginning to reduce the amount of natural rubber in passenger car tires in order to conserve the supply. There also is some belief that the military is going to take a good percentage of synthetic rubber tires on the basis that these are considered expendable and generally are not subject to very great mileage and high speeds. Some of the larger military vehicles trans-

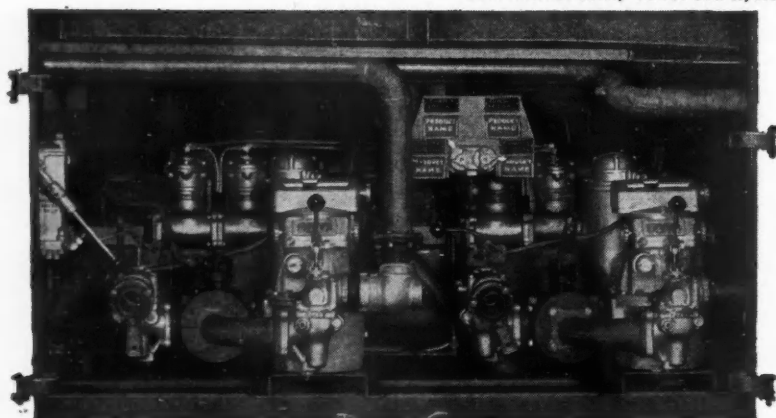
ports, however, may take tires with a higher percentage of natural rubber than would be required on smaller units. *It generally is believed that larger truck tires will stay at 100 per cent crude rubber for the time being and if the pinch gets considerably tighter this might be reduced to 97 per cent.* Dilution will start first in the smaller sizes up to about 7.50.

## NEW S&J HYDRAFOLD Increases Unloading Efficiency

IT'S AN OLD SPANISH CUSTOM — never to make two motions when one will do. In American business thinking, that spells efficiency. That's the idea behind the HYDRAFOLD, a new hydraulically operated manifold. Manifolding has always been a manual operation, and often a very confusing one. Opening compartment discharge valves has been done far more efficiently. S. & J. now brings petroleum transporters a new standard of efficiency—the same hydraulic pressure which opens the internal safety valves, simultaneously opens the hydraulic manifold. All the operator does is to set the pointer of the 4-Way S. & J. Distributor to the name of the product to be dumped, stroke the handle of the hydraulic pump—both valves open simultaneously.



Shown below is an efficiently arranged discharge compartment. Note the 4-Way Distributor in the upper right center, and the hydraulic operator at the extreme left, which actuates both internal safety valves and Hydrafolds.



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MONTREAL 360 Notre Dame St	VANCOUVER 550 Beatty St	DARLINGTON England			

Passenger car tires, of course, will be the first to be affected by the pinch on natural rubber, but the tire companies point out that in the case of both passenger car and truck tires, progress made both in rubber compounding and tire construction makes possible a much better synthetic rubber tire than was used during the war. Basic thinking on larger truck tires, however, is that it would be economically shortsighted to put workmanship and materials in a large sized synthetic truck tire. They say it is much wiser to keep these units at 100 per cent natural as long as possible with the smaller sizes and passenger car tires using a higher percentage of synthetic.

So far as inner tubes are concerned, it is believed that they eventually will go to 100 per cent butyl if the pinch on natural rubber gets tight. Currently, some of the larger sizes still are being made of natural rubber. The supply of nylon still is satisfactory, but the price remains high. Rayon also still is in reasonably good supply, but the price is at the highest point in history. Synthetic rubber production currently is being expanded under a program of reactivating synthetic plants which were put in standby condition after the war. This program is expected to be producing at a high rate by early next year.

The tire industry currently has very large order backlogs, but these are based more on scare buying and hoarding rather than on current usage. *Nonetheless, tire makers say that the supply of commercial truck tires will be adequate for all needs in the foreseeable future.* So far as prices are concerned, no one is willing to say that the continued round of price increases that started last October is yet finished. The attached chart shows the history of tire prices since July, 1949. Back of these increases lies tremendously increased

(TURN TO PAGE 176, PLEAES)

### Prices of Natural Rubber

Since March, 1950

March—1950.....	20 cents
May.....	24 cents
May.....	28 cents
June.....	31 cents
July.....	40 cents
August.....	58 cents
August 7.....	63½ cents

# AUSCO HYDRAULIC IS *duty caliber*

Just one look will tell you that these "big guns" of the AUSCO Jack line are *every inch* HEAVY-DUTY CALIBER.

*Every inch* of the Hydraulic Floor Jack, with its 134-pound solid steel chassis, is built for years of exceptional lifting duty. *Every inch* of the Hydraulic Curb Jack, with its 105-pound compact steel body, is built for extra maneuverability and quick on-the-spot servicing.

For smooth, dependable lifting power, you can't beat AUSCO's Hydraulic Axle Jacks. Exclusive "in-line" valve action starts the lifting operation instantly . . . simultaneous with the first stroke of

the handle to eliminate all lost motion and wasted "elbow grease."

Let your helpful AUSCO Jobber show you how these Heavy-Duty Caliber Hydraulics can help you raise the caliber of your servicing operations. He carries a complete line of AUSCO Jacks for every heavy-duty service. See him today or write for latest AUSCO Catalog

**AUTO SPECIALTIES MFG. CO., Dept. CC-9, St. Joseph, Michigan**  
Other plants: Benton Harbor and Hartford, Mich.; Windsor, Ont., Canada

## AUSCO HYDRAULIC AXLE JACK

Ram assembly easily removed for servicing . . . exclusive patented base for "self-aligning" of load . . . "instant-flow" safety release screw . . . piston cup made of highest quality, non-wearing material.

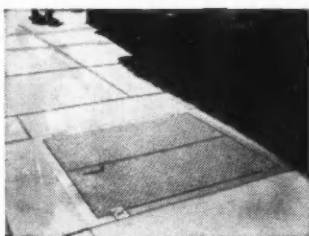
D-1501—1½ tons  
D-1511— 3 tons  
D-1521— 5 tons  
D-1531— 8 tons  
D-1541—12 tons





For greater safety under foot,  
in your plant and on your products

# Inland 4-Way Safety Plate®



Light! Strong!



Lasts Long



Quick Cleaning



Stays Flat



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Fl. Complete engineering  
and application data.  
Send for it!

STOCKED BY LEADING STEEL WAREHOUSES

## Tire Supply

Continued from Page 172

cost of both materials and labor to the tire manufacturers. Natural rubber, a large ingredient of truck tires, has increased 283 per cent over August, 1949. Pension agreements and wage increases also have upped operating cost as have higher prices for textiles, carbon black and chemicals. Chart 2 shows the increase in natural rubber prices since March of this year through August 7. Prices recently have declined, however, and if they do not rise substantially again, prices should hold at present levels.

However, one thing is certain—the fleet operator today is much better off in regard to the outlook for tires in the event of an allout war than he was in 1941. It may be necessary to use some synthetic rubber in large sized tires but that move will be forestalled as long as possible and the percentage held to the minimum.

### Truck Tire Prices

Since July, 1949

	Tires	Tubes
July 1, '49.....	-5%	-7½%
Oct., '49.....	+3½%	+3½%
Dec., '49.....	+3½%	+3½%
April, '50.....	+5%	.....
May, '50.....	+5%	.....
June, '50.....	.....	+10%*
July, '50.....	+7½%	+5%
Aug., '50.....	+7½%	+10-20%*

\* On natural rubber tubes.

END

Please resume your reading on P. 80

### Collyer Urges Halt Of Rubber to Russia

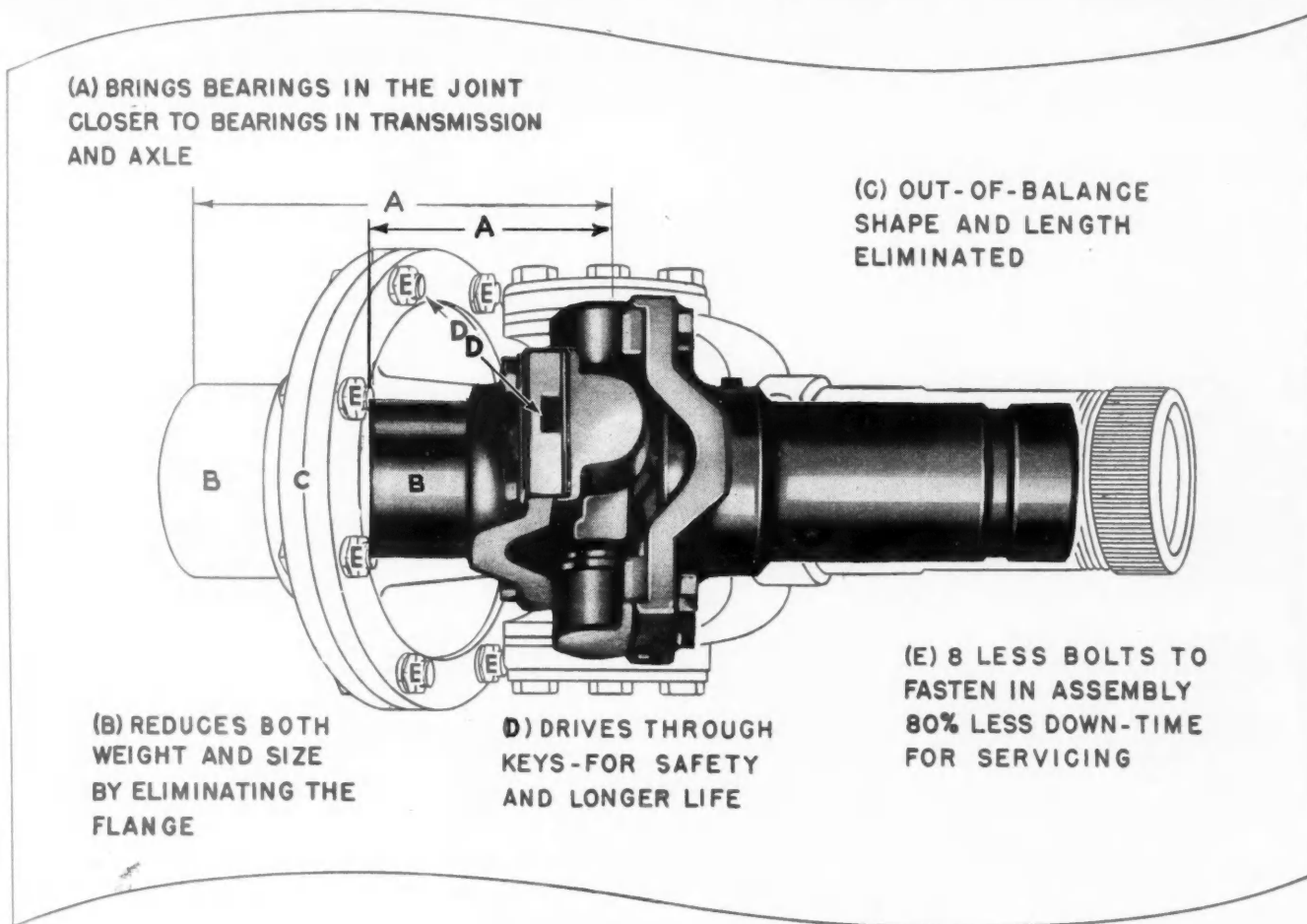
Almost as a sequel to the story ending on this page comes a report from John L. Collyer, president of B. F. Goodrich Co., urging the discontinuance of crude rubber sales to Russia and its satellites.

"Our country," said Collyer, "which normally consumes 55 per cent of the world's new rubber, received 55 per cent of Malayan rubber in 1940 but only 37 per cent in the first six months of 1950 . . . and only 27 per cent during the month of July.

"Principal supplier of rubber to Russia has been, and continues to be British Malaya and Indonesia and other producing areas unquestionably supply rubber for stockpiling and consumption behind the iron curtain." Yet, Collyer points out, these nations are standing with the United Nations on the Korean situation.



# Give YOUR Product THESE Advantages



MECHANICS universal joint engineering progress has reduced assembly time and labor, eliminated unnecessary size and weight, made operation smoother and safer, and cut the down-time for servicing 80 percent. You can give YOUR product these competitive advantages

by consulting with our engineers as to the size and type MECHANICS Roller Bearing UNIVERSAL JOINTS that will meet the needs of your product exactly.

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Borg-Warner • 2034 Harrison Avenue Rockford, Illinois

# MECHANICS

*Roller Bearing*



# UNIVERSAL JOINTS

For Cars • Trucks • Busses and Industrial Equipment

# Road Test Raises Many Questions

Continued from Page 66

latest facts on the progress of the test. It is their honest opinion that, up to this point, that Road Test One—MD is being conducted as honestly, sincerely, and impartially as possible.

## Years vs. Months

ONE of the various conclusions reached, at this time, is that it seems that some observers have not

been able to adjust themselves to the fact that normal factors of highway transportation are greatly accelerated in this test. A 24-hour cycle at Road Test One—MD conceivably could be a 24-day cycle on many of the nation's densely travelled highways, and a much longer cycle on most highways. Viewed in this light, the data found in the accompanying tables need not be accepted with alarm. What has taken place on

this test these last two months represents, to all intents and purposes, what would have taken years under normal conditions. The exact number of years, of course, depend not only on local traffic density but, also, on the nature of the traffic.

## The Picture to Date

TABLE 1 shows the latest available official summary of operation on Road Test One—MD. The data covers the test up to and including July 31, 1950. It will be noted that the total days of operation differ in Sections 1 and 2 and Sections 3 and 4. Tests in Sections 3 and 4 started later than those in the other two sections, due to the fact that the heavy vehicles operating in those sections arrived later than the vehicles running in Sections 1 and 2.

It also will be noted that there is a difference in net operating time for the various sections, which also affects practically all of the remaining factors such as mileage driven and total number of applications.

To show how much is accomplished in the short time since July 31, the total number of applications as of August 15, 2 a.m., were as follows: Section 1 (18,000 lb, single rear axle), 80,720; Section 2 (22,400 lb, single rear axle), 78,791; Section 3 (32,000 lb, tandem rear axle), 49,595; Section 4 (44,800 lb, tandem rear axle), 42,916.

## Test Road Has 102 New Cracks

PERHAPS the most vital bit of information coming from Road Test One—MD is that there are a total of 102 new cracks in the concrete paving that were not there when the test began. The exact number of cracks in each section and their total length is shown in Table 2.

A close study of these figures may make some fleet operators uncomfortably apprehensive as to the final outcome of this test. The fact that the heaviest vehicles are reported to have made the greatest number of cracks does not come as a surprise. It is simply a matter of axle loads and mathematics.

The figures reporting the new cracks should be studied in relation to Item 7 in the same table. Even with fewer applications (number of trips per slab), Section 4, on which the 44,800-lb tandem axle trucks are being tested, is beginning to show greater signs of deterioration than the other sections. There is a greater number of cracks, their total length is considerably greater, and the total number of affected slabs equals that of the three other sections combined.

Further study of the cracks reported  
(TURN TO PAGE 180, PLEASE)

Wherever tire heat is a problem, fleet owners everywhere are equipping their tires with DILL HI-TEMPS. Under abnormal hot tire temperatures, even up to 300°F. and more, the newly developed heat-resisting air seal keeps Dill HI-TEMP valve insides and caps airtight. Prevent tire trouble—stop costly road delays and tire repair expense by equipping your tires with Dill HI-TEMPS, now. Your wholesaler, tire or oil company can supply you, today.

**Ask for Dill "Hi-Temp" in the new Orange and Yellow carton.**

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in Handy Leather Pouch  
**INCLUDES THESE TOOLS**

- No. 5201 Valve Inside Insertor and Extractor
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Save time and trouble for your tire serviceman with this new handy kit of long-handled tools. Especially designed to reach inner dual tires for removing and replacing valve insides, and making necessary repairs on valve stems. A handy leather pouch with snap button lock holds the complete set of 6 tools and fits handily in pants, coat, or jacket pocket. Order from your wholesaler, tire or oil company, or write for descriptive folder.

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# 3

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# ALL-PURPOSE GREASE



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Use it to lubricate CHASSIS, WHEEL BEARINGS, WATER PUMP and UNIVERSAL JOINTS. It's better, faster, safer lubrication—and it saves you money *all the way around.*

**ONE—  
NOT  
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Put D-X All-Purpose Grease to the test on your own trucks. Discover major savings on operating and maintenance costs. Order a supply from your D-X dealer today or mail the coupon for details.

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## Maryland Road Test

Continued from Page 178

in Table 2 will show that in spite of the heavier gross rear axle weight of the tandem vehicles in Section 3, the distribution of their loads at 16,000 lb per axle has resulted in less damage than that caused by the vehicles in Section 2 (22,400 lb single rear axle).

On the other hand, the 44,800-lb tandem units in Section 4, which carry exactly double the rear axle gross of

the 22,400-lb single axle units, are producing more than twice as many cracks as the vehicles in Section 2. Axle spacing on the lighter tandems is 50 in. On the heavier ones, it is 52 and 54 in.

### Highway Still Looks Good

DESPITE all comments about cracks in the respective concrete slabs, the general appearance of the test road still is good. The cracks are not bad. Most are but fine lines that can be seen only by close inspection. CCJ's editors have personally examined practically

every slab in the 1.1-mile test road, noting many more cracks than reported in Table 2. However, these additional cracks, or extensions of previous cracks, have occurred after the period covered by Table 2.

Up to this writing, it is doubtful if any observer would say that any of the slabs have failed. That a number are in the process of failure cannot be denied, although it is doubtful if continuous axle load applications alone will accomplish this result.

### "Pumping" Extremely Bad

WEATHER conditions will play an important, if not the most important, part in the future results of this road test. Rain, in particular, is the factor that will have to be reckoned in influencing the final result.



FIG. 6. Test road maintenance includes periodic filling of joints, as shown. Here, also, instruments to test stress and strain of paving were installed in seam. Four-point contact is shown inserted in shoulder, in which, also, a French drain was installed as shown. Below, ditch end of a French drain



It was the original opinion of the engineers who observed the test road, before the official test began, that the subgrade was generally good. The shoulders, also, were thought to be good. However, as the test progressed, a number of "pumpers" began to appear. (TURN TO PAGE 184, PLEASE)



## The BIG DIFFERENCE Between a Truck and a "TRUCK!"

A truck is not a TRUCK if its body can't "stand the gaff" along with the engine and chassis.

The best truck bodies built today are designed and made to stand the abuses of long service with maximum usage. That's why the large majority of body builders prefer Eberhard **E** Purpose Tested Hardware for the "Long Run."

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**EBERHARD** Long Run  
TRUCK BODY FITTINGS **E**

EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Co.

EVARTS AVE.

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## Peterson-Burston SCREW-IN VALVE SEAT ELIMINATES REAL CAUSE OF VALVE BREAKAGE-BURNING

**Triples Mileage Between Valve Grindings On Engines Pulling Heavy Loads**

**Chrome-Nickel-Iron Seat is INDIVIDUALLY CAST UNDER PRESSURE, like Piston Rings;  
Makes a Tough, Close-Grain, Long-Wearing, Good Heat-Dissipating Valve Seat.**

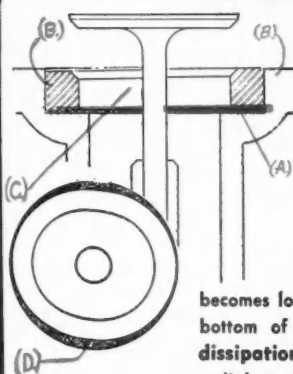
We asked hundreds of fleet operators if they were having trouble with *valve seats* . . . NO, they weren't. Then, were they having trouble with the valves themselves . . . unanimously YES!

The truth is, *nearly all valve trouble stems from the seats*. The revolutionary P-B Threaded-In Valve Seat puts an end to constant breakage, burning and replacement by solving the two main problems of valve maintenance—HEAT DISSIPATION and CONTROLLED EXPANSION. In an older engine, minor wearing

points, corrosion, poor carburetion, bad timing and inaccurate factory clearances will make the engine run hotter. It *must* have valve seats that will take more heat.

Regrinding the old seat—or pressing in a new one—won't cure a bad valve seat condition. Only  $\frac{1}{4}$  to  $\frac{1}{2}$  the original mileage can be obtained, *because the basic trouble has not been corrected!* The only way to restore new-engine valve and seat life—to get needed expansion clearance—is to install Peterson-Burston Screw-In valve seats!

### LOOK WHAT HAPPENS!

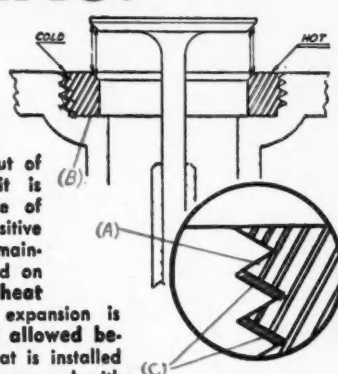


#### WITH ORDINARY PRESSED-IN TYPE VALVE SEATS

When heat causes a pressed-in seat to expand upward from the bottom counterbore. On cooling, it contracts evenly from top and bottom leaving space (A) which becomes loaded with carbon. This insulates the bottom of the seat ring causing poor heat dissipation. Being press fit, the seat exerts radial pressure at point (B). Under extreme

heat this pressure is increased and eventually the seat will collapse, buckle or distort them when seat tilts (C) and loses contact with sides (D) the valve will burn or break.

#### WITH P-B SCREW-IN VALVE SEATS



The P-B seat cannot push out of the counterbore, because it is locked in by the top side of threads on seat (A). Positive metal to metal contact is maintained at the bottom (B) and on all sides, giving excellent heat dissipation. Normal heat expansion is taken care of by space (C) allowed between threads. The P-B seat is installed without exerting radial pressure, and with perfect concentricity with the center line of the valve guide. It will maintain the inside dimension, stay in alignment, and allow for perfect seating of the valve. This eliminates valve breakage or burning due to high points caused by the tilting of the seat.

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Stop costly breakdowns that are robbing you of \$200 to \$500 each. Keep your trucks on the road, in the shop less than half the time they now spend there. P-B Master Shops, with a complete set of equipment, are now operating in all major cities.

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Please send me, at no obligation, complete information and prices on the P-B Valve Maintenance Plan and give me the name of the P-B Master Shop nearest me!

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ADDRESS.....

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## Maryland Road Test

Continued from Page 180

pear and, the highway engineers began to doubt seriously if the subgrade and shoulders were what they were supposed to be. In fact, pumping was so bad that it was the principal item of conversation and the principal target of criticism throughout these first two months of the test. Non-technical news reporters, in particular, have seized upon this phenomena to give the road

test a "sensational angle."

For the benefit of those who are not familiar with this phenomena, pumping is the ejection of water and subgrade soil through joints, cracks, and all along the edge of the pavements. It is caused by the downward movement of the concrete slabs actuated by heavy axle loads passing over the pavement under which there is an accumulation of free water on, or in, the subgrade.

Highway engineers and soil experts maintain that there are three or four conditions which must be present—not singly but together—to cause pumping.

Basically these factors can be summarized as follows: 1, Water-retaining subgrade soils, such as clay; 2, free water under the pavement; 3, frequent heavy axle loads.

It must be remembered, and for this reason it is repeated, that it takes all three factors to produce pumping. The absence of any one will fail to produce pumping.

Continued pumping leads to the removal of subgrade soil. Thus, the lack of subgrade support results in faulting or settlement at the joints, cracking, and eventual breakage of the pavement. (Faulting is described as the depression of one slab end below an adjacent slab end, usually in the direction of traffic.)

Good highway construction techniques aim to prevent pumping by the use of subgrades that will quickly disperse water resulting from rainfall or underground springs. Similarly, gravelly shoulders provide good drainage and are considered desirable for all highway construction. Unfortunately, these ideal conditions are seldom found on our highways. It is quite apparent, also, that they are not present in this section of Route 301 in Maryland.

### 104 "Pumpers" on Section 4

TABLE 3 gives a summary of pumping conditions developed on all four sections of the road test. From the figures shown, it is easy to see why pumping is one of the principal subjects of conversation about the road test.

Whatever the outcome of this test, this much is certain: Trucks, alone, cannot be held responsible for highway failure. The road builders and public officials have a share in this responsibility, too. As pointed out, it takes at least three factors to cause pumping. If the subgrade soil and shoulders conformed to the standards of good highway construction, there would be less pumping and less highway damage.

(TURN TO PAGE 186, PLEASE)

### New "PB" Rubber

Tire manufacturers are interested in a new type synthetic rubber developed by Phillips Petroleum Co. in cooperation with the Office of Rubber Reserve. The new rubber went into production in July on a very small scale to supply material for test tires. Laboratory reports indicate that the new rubber called "PB" is superior to the old GRS and possibly may be equal to cold rubber in quality. However, tire manufacturers want to make extensive road tests before passing any decision. The new rubber requires no styrene, a coal tar product which has been in short supply because of the coal strike and heavy demand from other users.

**Here's the**  
**W.G.B.**  
**Replacement**  
**CARTRIDGE**  
**That Can**  
**Improve**  
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**— Regardless**  
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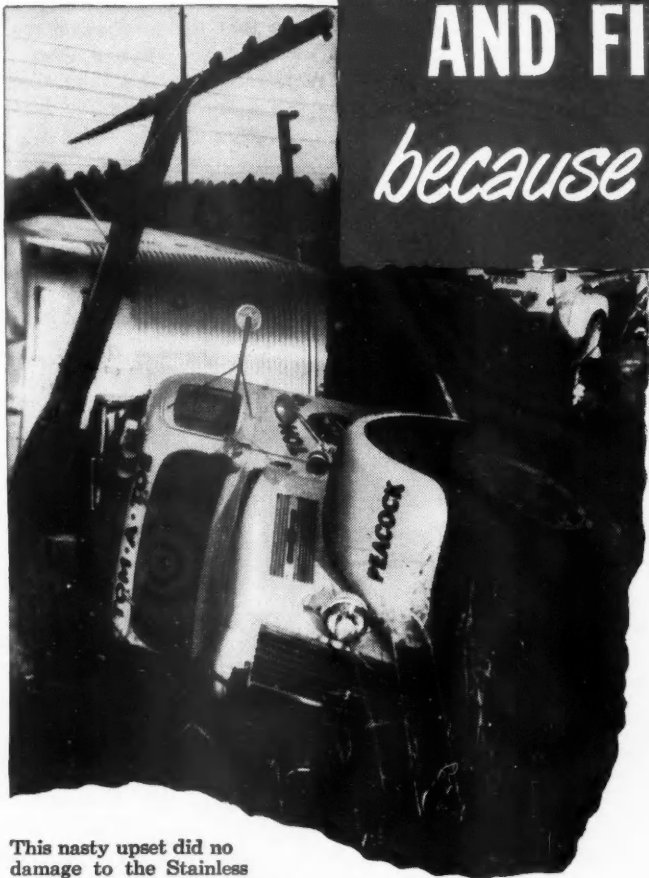
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**W.G.B. OIL CLARIFIER, INC.**  
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# THIS TRAILER GOT UP AND FINISHED ITS TRIP *because it's Stainless Steel*



This nasty upset did no damage to the Stainless Steel trailer owned by Tomato Transport Company, Atlanta, Ga.

**C**ARRYING a load of 505 field cases of tomatoes, this Stainless Steel trailer—a 32-foot tandem-axle Fruehauf—overturned on a Southern highway. Righted, it was found to be undamaged and ready to complete its run. No wonder the owner, Tomato Transport Company, Atlanta, Ga., is ready to tell the world that, pound for pound, Stainless Steel is stronger than any other material used in trailer construction.

Incidents like these are dramatic proof of the ability of Stainless Steel to withstand the severest usage. Equally convincing are the records of hundreds of thousands of miles of day-in, day-out service that Stainless trailers have rolled up.

Important as they are, durability and long life are only two of the benefits of Stainless Steel construction. Due to the remarkable strength to weight ratio of Stainless Steel, deadweight is reduced to a minimum and an extra ton of payload can ride on every trip. Its exceptional corrosion resistance pays off too, especially in trailers carrying wet or refrigerated cargos. And the always-attractive appearance of Stainless trailers is good advertising for your firm on any highway.

More and more fleet operators are taking advantage of the economies of Stainless trailer construction. Add your fleet to the fast-growing list.

But be sure that you specify U-S-S Stainless Steel. This perfected, service-tested material is available in the variety of forms, grades and finishes that allows your trailer manufacturer to select the material for every part according to the function it must perform. Using U-S-S Stainless Steel assures you the finest performance.

The same trailer, ready for another trip.



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*Complete Cranking and  
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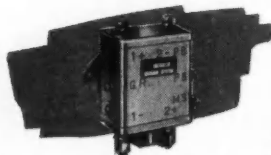
### DIESELS



Generators—14 volt, 40 ampere, low cut-in, and 50 ampere. Standard swivel mounting, as shown, or strap mounting.

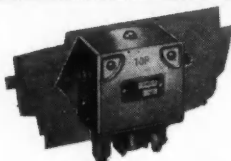


Voltage Regulator of rugged construction for heavy duty service.



Series-Parallel Magnetic Switches for 14-28 volt series parallel systems. Designed for use with generating systems up to 175 amps.

## 14 & 28 VOLT SYSTEMS



Magnetic Switches for 14-28 volt series-parallel systems and standard 14 volt systems.



Cranking Motors for 14 volt and 14-28 volt series-parallel systems.

## Genuine Leece-Neville Costs No More

Owners of diesel equipment can now have a Leece-Neville high-quality electrical system without paying a premium price. With it they get unequalled freedom from maintenance and breakdown expense.

Manufacturers who make Leece-Neville standard equipment find it pays off in sales.



For complete specifications, write Dept. 910,  
The Leece-Neville Company, Cleveland 14, Ohio  
*Pioneer and STILL Quality Leader*

# Leece- Neville

## Maryland Road Test

Continued from Page 184

Considering the fairness with which the test has been conducted so far, it is quite likely that the final summary will attach much weight, and consequent responsibility, to the subgrade. This observation is based on the fact that none of the rainfall recorded was much over  $\frac{1}{2}$  in. on any one day. What would have happened if the rainfall had been around 1 in. or as much as 2 in. within any 24-hour period? We may yet find out. The test still has four months to run.

Of particular interest in Table 2 is the fact that the greatest amount of pumping was not recorded on the days of greatest rainfall. As a matter of fact, on the day of greatest rainfall the least amount of pumping was recorded. This seems to indicate that the subgrade soil held the water in suspension and did not permit proper drainage, as shown by the data recorded for July 20 and 21.

As a further indication of the extent to which the subgrade soil retains free water, the greatest degree of pumping was indicated on July 12. It has been raining for at least two of the days previous, and it appears that these rains, which were relatively light, were absorbed to a considerable degree by the subgrade soil.

Doubtlessly, the degree of pumping experienced on Sections 3 and 4 will receive the greatest comment. The figures are surprisingly large, to say the least. However, any criticism directed at these figures must also take into consideration the fact that the lighter axle loads contributed their share of pumping. It is all a matter of degree, of course, but had the subgrade soil and shoulders been capable of reasonably good drainage, a different report doubtlessly would have resulted.

Fig. 1 tells its own eloquent story about the degree of pumping developed on one of the sections. This was Section 2, over which the 22,400-lb loads passed. Pumping at one of the joints at this section was so bad that it almost reached "geyser" proportions. Fig. 1 shows a closeup of a telephone pole splattered with mud to a 12-ft height. The illustration, however, does not show the highest point of splatter but rather, the highest point of dense accumulation, which, as shown by the surveyors rod leaning against the pole, was 10 ft.

### Test Road Maintenance Good

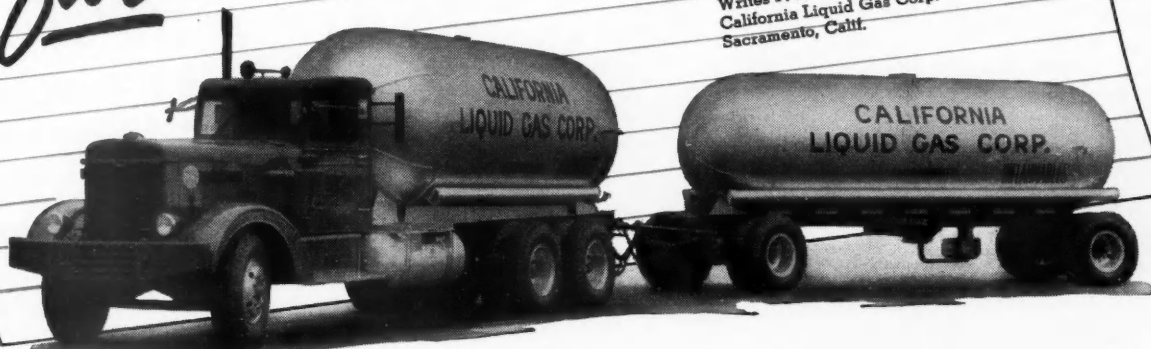
DESPITE some criticisms that maintenance of the test road was below standard, there is sufficient evidence in (TURN TO PAGE 188, PLEASE)

CALIFORNIA LIQUID GAS CORP.  
Sacramento, Calif.

## 300,000-MILE REPORT

*"Aluminum wheels  
far more satisfactory!"*

Writes F. M. ROWLES, President  
California Liquid Gas Corp.  
Sacramento, Calif.



After the above truck-trailer combination completed over a quarter-million miles on Alcoa Forged Aluminum Disc Wheels, Mr. Rowles wrote the following to a fellow fleet-owner:



MR. ROWLES

"There are several factors which, in our opinion, make forged aluminum wheels far more satisfactory than steel wheels:

1. The lighter weight of the wheel.
2. It is much easier, and less dangerous, to change a tire using the aluminum wheel.
3. The tire will not adhere to an aluminum wheel as it does to steel. Much easier to remove.
4. There is less danger of failure in the aluminum wheel, because there is no welding or riveting."

Make your own road-run proof. Switch to light, strong Alcoa Forged Wheels on your next truck or trailer order. Results... extra payload capacity, less wear and tear on chassis and tires. Up to 50 lbs. less unsprung weight per wheel!



*Send for free booklet!*

Gives full information on Alcoa Forged Disc Wheels...advantages, specifications, installation data. Write to ALUMINUM COMPANY OF AMERICA, 1870J Gulf Building, Pittsburgh 19, Pennsylvania.



# ALCOA

## FORGED ALUMINUM DISC WHEELS



Ingot • Sheet & Plate • Shapes, Rolled & Extruded • Wire • Rod • Bar • Tubing • Pipe • Sand, Die & Permanent Mold Castings • Forgings • Impact Extrusions  
Electrical Conductors • Screw Machine Products • Fabricated Products • Fasteners • Foil • Aluminum Pigments • Magnesium Products



## Maryland Road Test

Continued from Page 186

the detailed record maintained by the project engineer and the officials responsible for the test to show that the contrary is true. An indication of this is to be found in Table 3. In the column headed "Remarks," it will be observed, for example, that the shoulders along the 1.1 mile strip were dragged on July 13 and 19.

Actually, the official July records shows that the shoulders also were

dragged on July 28. Gravel was added to the shoulders the last two times before dragging. The shoulders also were rolled and covered with calcium chloride on July 20. This, of course, is routine maintenance. In addition, several French drains were constructed to control pumping, and the turnarounds were practically rebuilt since the project started.

Maintenance of the slabs has been equally as good. The records show that on July 8 and 18 all questionable seams in the joints were filled with Maryland K filler material.

Bearing in mind the accelerated rate of all conditions on this test, the degree of maintenance on the test road seems to be in line, and comparable to good normal standards. As this is being written, 20 truck loads of gravel have been deposited on the shoulder. Within the next day or two the shoulders will be dragged.

### Test Vehicles Criticized

WHILE most visitors, particularly those who have studied seriously all details in connection with the road test, have come away generally satisfied with the test procedures, there still are some who find fault with the test—particularly the vehicles. The two most frequently criticized items are the tires and the tandem axles.

Criticism of tires concerns the sizes used. All vehicles, except one, are equipped with 11:20 tires. The remaining vehicle, one of the heavy tandems, is equipped with 11:22's. It is argued that, not only are the tires overloaded, but the point of impact on the highway, caused by the smaller tire section at the point of contact, is more severe under existing loads than would be the case if larger tires were used.

As far as the tire overloads are concerned, test officials say that this is quite in line with general practice, according to data obtained from various highway surveys. One of these studies, made during 1948, showed 29 per cent of axles equipped with 11:20 tires were overloaded by 25 per cent. Maximum overloading on this test is said to be 24.4 per cent. Tire manufacturers, themselves, are said to count on a 20 per cent overload.

Data collected from various studies in the past show that it is not unusual for vehicles carrying, for example, 22,400-lb axle loads to be equipped with 11:20 tires. Furthermore, it was pointed out that when the test policies

(TURN TO PAGE 191, PLEASE)

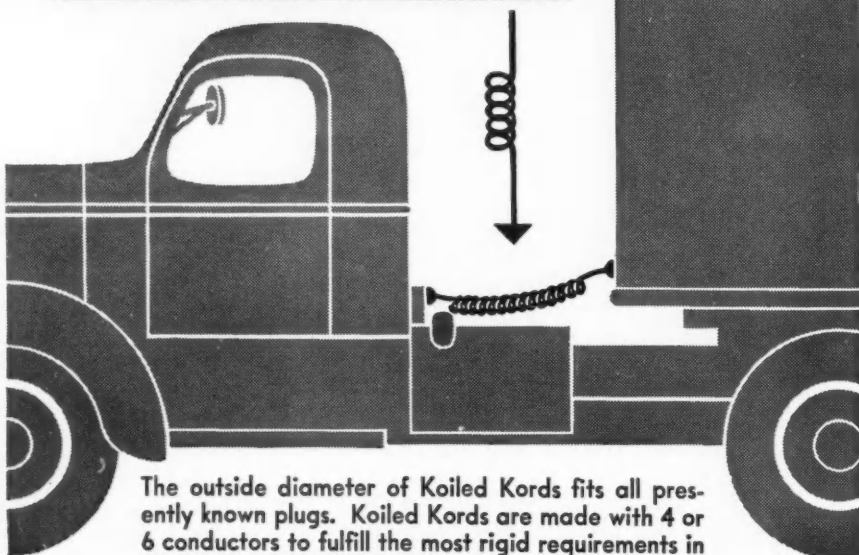
### ATA Rejects Johnson Amendment

John V. Lawrence, Managing Director of American Trucking Associations, Inc., has urged the U. S. Senate to reject a proposed amendment to the pending Federal-Aid Highway Bill which would deny Federal highway funds to any states allowing motor vehicles to carry weights in excess of 18,000 pounds per axle. It would affect 14 states and the District of Columbia whose laws currently are less restrictive.

Mr. Lawrence called the amendment introduced by Senator Ed. Johnson (D) of Colorado, a "blackjack" which, through "indirection", would launch the Federal Government into a field of regulation which now is reserved to the states and which Congress has refused to enter directly.

## THE *Best* MAINTAINED FLEETS USE AUTAC

# Koiled Kords



The outside diameter of Koiled Kords fits all presently known plugs. Koiled Kords are made with 4 or 6 conductors to fulfill the most rigid requirements in all states where legal standards have been established. Koiled Kords are neoprene-jacketed to give long wear with resistance to abrasion and the ill effects of sunlight, grease, acids, moisture and other factors that soon destroy rubber-covered cords.

**SOLD THRU TRUCK DISTRIBUTORS EVERYWHERE**

HAVE THESE TROUBLES COST YOU MONEY?



When tractor is riding alone, long, loose cords often jog off and catch under the wheels de-traying cord and plug.



Ordinary cords, if too long, lay against drive shaft and wear out.



Too-long cords catch on gas tank caps and other projections and break.



Loose cords can catch in the fifth wheel and be cut off when tractor is backing into trailer.

YOU CAN SEE HOW KOILED KORDS REMEDY ALL THESE TROUBLES

AUTAC, INC., P. O. BOX 1071, NEW HAVEN, CONNECTICUT

Gentlemen:

Please send complete information, including prices, about AUTAC KOILED KORDS

Name..... Company.....

Street..... City..... Zone..... State.....

## Maryland Road Test

Continued from Page 188

were being formulated, the various automotive equipment manufacturers were represented and none offered any objections to tire sizes suggested. Maryland's maximum legal width of 96 in. also was a controlling factor on the heavy vehicles.

As far as the tandem axles are concerned, the principal criticism is that all are driving axles (6 x 4), whereas live-and-dead axle combination (6 x 2) would have been a better application, particularly since traction, gradeability and similar conditions are not factors on the test road. The principal objection to the use of 6x4s, instead of 6x2s, is that there is a great deal of unsprung weight (one source estimated that this amounted to probably as much as 1000 lb), and that they are not representative of the actual vehicles found in use on highways similar to the test road.

The test committee's reply to this criticism covered several points. One

was that, again, at the initial policy meeting vehicle manufacturers present had every opportunity of criticizing the suggested axles but that none were offered. Further, it was considered desirable to use standard vehicles, and that few, if any, manufacturers offered 6x2s as standard models.

Criticism of unsprung weight was not regarded as seriously affecting the overall results. One explanation of this point was that, inasmuch as all tandems were running in adjacent lanes, the unsprung weight factors were practical-

ly neutralized because all axles were of the same type.

In general, even the critics do not condemn the project as it is being conducted. It is believed by the road test's executive committee, test personnel, and all concerned, that the criticisms advanced are offered in a spirit of helpfulness, but that there always will be differences of opinion on the various details.

**END**

*Please resume your reading on P. 67*

### Goodrich All-Nylon Construction

All sizes, 8.25-20 through 11.00-24, of its line of Super Highway Truck tires are now being manufactured in all-nylon construction, the B. F. Goodrich Co. of Akron, Ohio, announced recently.

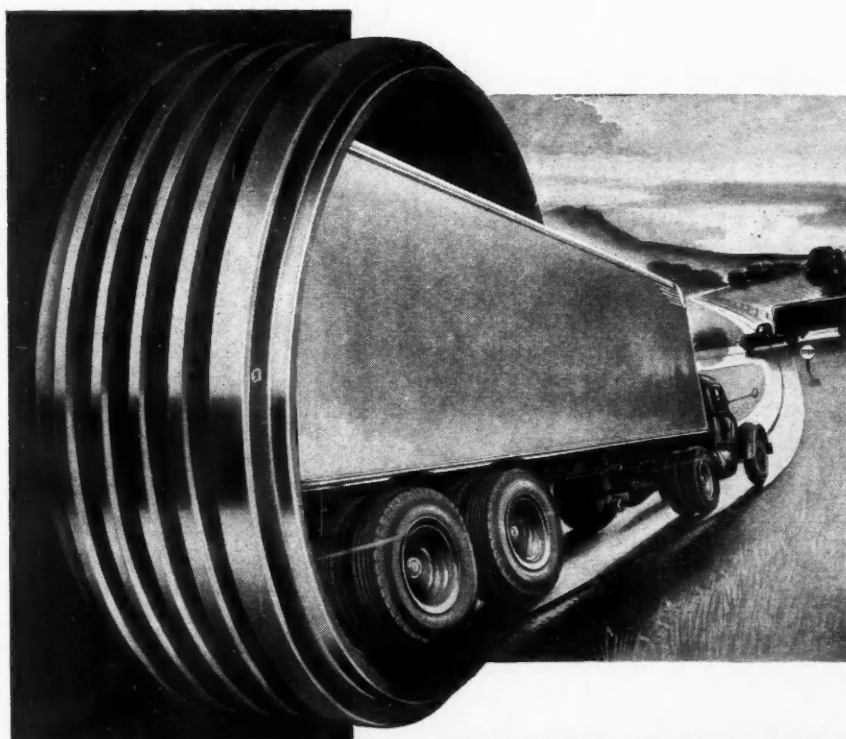
Used in high-speed, long-haul, over-the-road service, the Super Highway tire, when inflated, presents a flatter design to the road so that rate of tread wear is decreased. The tire has improved cord body and bead construction.

### Seiberling Joins Copolymer

Seiberling Rubber Co. announced that it has joined the Copolymer Corp., which operates a government synthetic rubber plant at Baton Rouge, La. Organized in 1942, the Copolymer Corp. is owned jointly by Seiberling, Dayton Rubber Co., Sears, Roebuck and Co., Armstrong Rubber Mfg. Co., Armstrong Rubber Co., Gates Rubber Co., Lee Rubber & Tire Corp., Mansfield Tire and Rubber Co., and Midland Rubber Co.

### Out-Size Chevrolet

Chevrolet last month went into production of a long wheel-base model representing an addition to the line. The unit is a conventional cab and chassis with 179-in. wheelbase and powered by the 105-hp. truck engine. Measurement from cab to rear axle is 102 in. The frame with seven cross members extends 81 in. behind the rear axle to provide support for bodies up to 16 ft. long. The longest wheelbase in Chevrolet up to this time has been 161 in.



## HEAVY-RIBBED GUNITE BRAKE DRUMS ARE NOW HEAT-TREATED IF DESIRED

All the superior qualities of the famous Heavy-Ribbed GUNITE Brake Drums have been retained and still further improved by this new GUNITE heat-treating process. Normalized GUNITE Brake Drums are heat treated to bring you greatly improved wearability of the drum. Thus GUNITE offers you longer drum and lining life. You get lower cost per mile with GUNITE Brake Drums.

Write for name of your nearest GUNITE Distributor

**GUNITE FOUNDRIES CORPORATION**  
Rockford • Illinois

# WHAT DO YOU EXPECT FROM BRAKE BLOCKS—

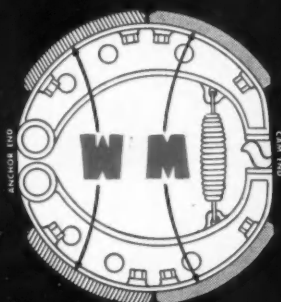
- Quick, smooth, quiet stops?
- Safety in any weather?
- Cooler running?
- Longer drum life?
- More mileage?

## THEN USE REDDAWAY

Combination "WM" Brake Block Sets. Our customers tell us that Reddaway meets all these requirements.

### THE REDDAWAY COMBINATION

#### "WM" BRAKE BLOCK SETS



W = Special woven blocks. Where added friction is needed. Means quicker, cooler, smoother stops

M = Special molded blocks. Where wear-resistance is needed. Means longer service, fewer adjustments

**It's this combination that counts**

Reddaway Combination "WM" Brake Block Sets (see diagram) are not new. We just haven't talked about them while they were being tested for over two years on buses and trucks in the hardest kinds of service.

When we developed Reddaway "WM" Sets for air brakes, we felt sure our research men were right, our composition was correct, our manufacturing methods were the best. Now we know that Reddaway meets any and all demands for buses and trucks . . . because our customers have told us so. Economical on drums—quick, smooth and quiet on stops—cooler running—long on mileage—short on adjustments and maintenance.

If you've never tried Reddaway, ask for a set today. Use it on your hardest runs. Then you and your drivers will see why Reddaway is the safest and most economical brake lining you have ever used.

The coupon below is for your convenience. No obligation.

Reddaway Brake Lining

28 Euclid Ave., Newark 5, N. J.

☐ Please send me more information on Reddaway Combination "WM" Brake Block Sets.

☐ I'd like to try Reddaway on a \_\_\_\_\_ bus or truck.  
(name, model and year)

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_ Size of fleet \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

## REDDAWAY BRAKE LINING

*Brake lining specialists since 1890*

28 EUCLID AVENUE NEWARK 5, N. J.



## P. S. on CCJ's August "Overload"

Our "Overload" editorial in the August issue (pg 20) entitled "15 Trucks and 5 Passenger Cars—Friends or Foes?" evoked many comments. Readers will recall that it concerned the subject of truck tailgating on hills. Among the comments was the following excerpt from John Sweeney, president of Sweeney Motor Trucking Co., Inc., Everett, Mass.:

"To my way of thinking a better improvement in policy would be to build another lane to the right and have it for trucks only. [It should be] built on many bottleneck stretches of hill highways. Perhaps if you will print this appeal to right wrongs, the powers might see a way to use this plan and help out especially on our New England hill roads."

We hastened to assure Mr. Sweeney of our agreement with his thinking. A portion of our reply read as follows:

"Of course we agree wholeheartedly with your solution to the problem—namely, the construction of a right hand lane for exclusive truck use. It is the only ideal method of solving nearly all hill passing problems."

"On the other hand, our thought was to point out an interim solution that could be accomplished immediately and at virtually no expense compared with the millions required for the construction of an additional lane."

Lest other readers have doubt, let them be assured that COMMERCIAL CAR JOURNAL has for many years actively supported all plans for the construction of additional passing lanes on all hills where serious bottlenecks occur. We hope that all of us may live to see the day when such become the rule rather than the exception.

Meanwhile we reiterate our appeal for careful supervision directed at the elimination of truck tailgating particularly on bottleneck hills. In further support of the idea, here's what ATA

President Henry E. English said recently on the same subject:

*"It is my opinion that this one thing is causing the trucking industry much ill will, as much as any other criticism made of us. It is the duty of management to take the necessary steps to stop this practice. It is certainly discouraging for me to have any truck owner say that he cannot control this*

*situation. It is simply a matter of being a good citizen. It is a duty that we owe to the public.*

*"The situation can be corrected immediately if management takes the interest that we should in this matter. In my opinion it is a job that we cannot just tell our Safety Director we want him to accomplish but is one that we must see that he does accomplish. I trust that you will give this matter your personal attention to the extent that you will be sure that your drivers will not become involved in this sort of hazard. If we do not act on this, and at once, we will be inviting legislation to compel us to do so.*

*"Let's correct it ourselves."*

**MOBO**

**HANDI-WIPE**

**HAND CLEANER**

**WATERLESS-LANOLATED**

**MOBO**

**HANDI-WIPE**

**WATERLESS HAND CLEANER**

Packaged in convenient sizes—15-oz. and 8-lb. cans.

**"Just Rub On—Wipe Off!"**

MOBO HANDI-WIPE is a non-irritating waterless hand cleaner that removes dirt, grease, paint and stains in one-two-three order.

HANDI-WIPE contains lanolin for hand protection . . . is pleasant smelling. Ideal for mechanics, service station attendants, motorists, painters, printers, etc.

Order Handi-Wipe from your jobber today and get a free counter display. For further details write to:

JOHN T. STANLEY CO., INC. • 626 West 30th Street • New York 1, N. Y.

### These Perplexing "Times"

*The Maintenance Superintendent found his little son, Sammy, in the barn. He was shaking his pet rabbit and saying, "Five and five. How much are five and five?"*

*Very much surprised, the Maintenance Man finally interrupted the proceedings. "What's the meaning of all this, Sammy?"*

*"Oh," said Sammy, "teacher told us that rabbits multiply rapidly, but this doggone fellow here can't even add."*

# New Product Descriptions

Continued from Page 78

## P279. Reflective Sheeting

A new "Scotchlite" reflective sheeting provides trucks, buses and taxicabs with "wide-angle reflectorization plus an easy-to-clean surface." The material reflects auto headlights up to 220 times brighter than white paint. The entire area of the sheet reflects, in full color, directly back toward the approaching motorists. The new Wide-Angle "Flat-

Top" sheeting is made in six colors, silver, yellow, red, gold, blue and green. Minnesota Mining & Mfg. Co., St. Paul, Minn.

## P280. Batteries

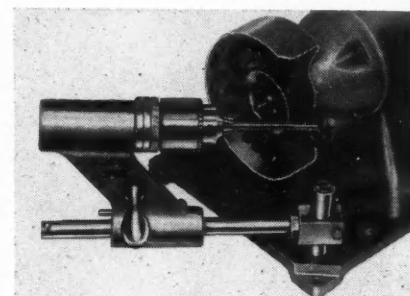
A new line of Super Master batteries features Metalex, a grid metal that is said to offer 100 per cent more resis-

tance to overcharge.

Four other design properties are a new current-producing active material, a new hard rubber container, a new sealing compound, and a spot rib rubber insulation. These batteries will be produced in the four most popular group sizes. Willard Storage Battery Co., Cleveland, Ohio.

## P281. Valve Cleaner

This new valve cleaning tool to remove carbon deposits from engine valves, straight or mushroom stemmed, up to 5/8-in. in diameter and 9-in. in length, mounts on any standard bench grinder and does not interfere with grinder's other use. It consists of a



sliding carriage, carrying a free spinning, 5/8-in. Jacobs chuck in which the valve is mounted. Carriage is guided by hand so that all surfaces of spinning valve can contact a special-type knotted wire brush. E. H. Tott & Co., Oakland, Calif.

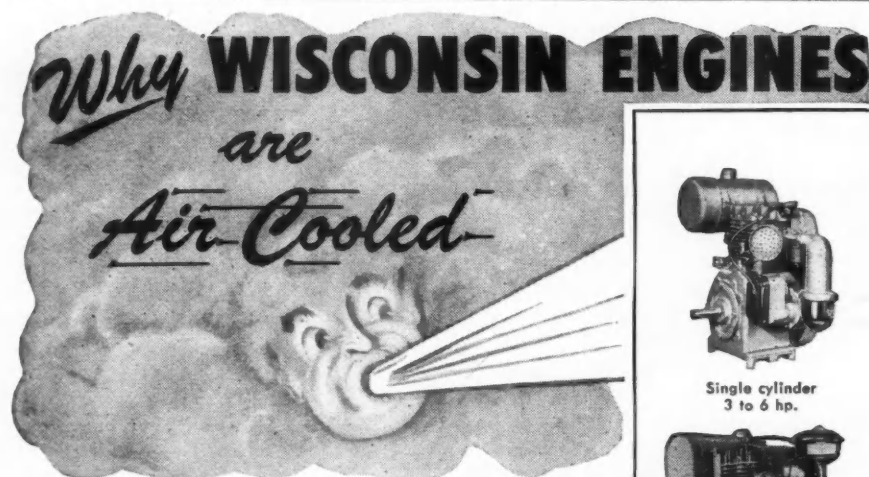
## P282. Tank Drain

The Brunner-Matic tank drain consists of only two moving parts—a piston and a valve plunger. The air released from the after cooler through the unloading device located on the electric pressure switch actuates the drain. The blast of air released is utilized to actuate the piston. The downward thrust of the piston causes the valve plunger to be depressed, allowing the air to be drained from the tank, carrying with it moisture, oil and impurities. The drain can be driven by air exhausted from a centrifugal or magnetic loader. Brunner Mfg. Co., Utica, N. Y.

## P283. Trust Hoist

This truck hoist is an electrically powered mast-and-boom cable lift. It is rated for a straight vertical lift of 1000 lb, or for a lift or pull of 2000 lb with split block and half tackle. Powered by a patented reversible motor which is fully enclosed in a housing beneath the truck bed, the motor operates on a regular battery.

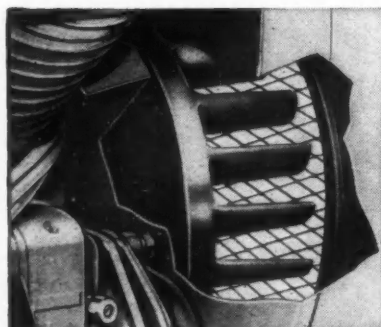
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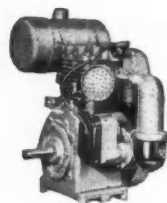
Air Cooling, as developed and perfected by Wisconsin Motor Corporation engineers, has these important advantages for the power user:

1. Greatest freedom from cooling chores and troubles. More Service FROM the engine, less service TO the engine; fewer Man-Hours lost; more H. P. Hours on the job.
2. Most efficient cooling at all engine speeds and all temperatures, from sub-zero to tropical highs. The engine never runs out of AIR!
3. Lowest maintenance cost. Integrally cast flywheel fan eliminates all cooling "accessories" . . . nothing to get out of order, wear out, or require replacement.
4. Lighter engine weight and greater compactness . . . for most convenient portability and greatest installation adaptability as power components on original equipment.

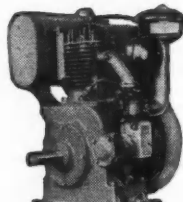
Every Wisconsin Engine from the smallest to the largest (3 to 30 hp., single cylinder, 2-cylinder and 4-cylinder) has all the advantages of dependable AIR COOLING, plus heavy-duty design and construction throughout.



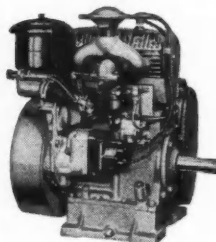
A large capacity fan, integrally cast as a part of the flywheel, creates a continuous, powerful air blast as long as the engine is running, distributing the cooling air most efficiently over cylinder walls and valve areas. THE ENGINE NEVER RUNS OUT OF AIR.



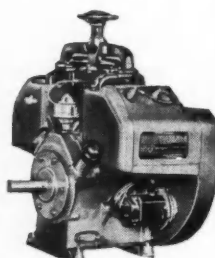
Single cylinder  
3 to 6 hp.



Single Cylinder  
6 to 9 hp.



Two Cylinder  
7 to 13 hp.



V-type 4-cylinder  
15 to 30 hp.

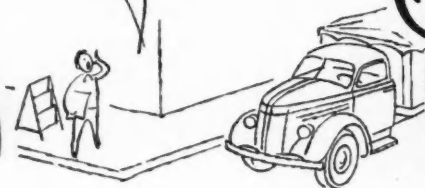


**WISCONSIN MOTOR CORPORATION**

World's Largest Builders of Heavy-Duty Air-Cooled Engines  
MILWAUKEE 46, WISCONSIN

# BIG NEWS

EXTRA!  
Payload



EXTRA!  
Performance



EXTRA!  
Profits

## with SAGINAW HYDRAULIC POWER STEERING GEAR

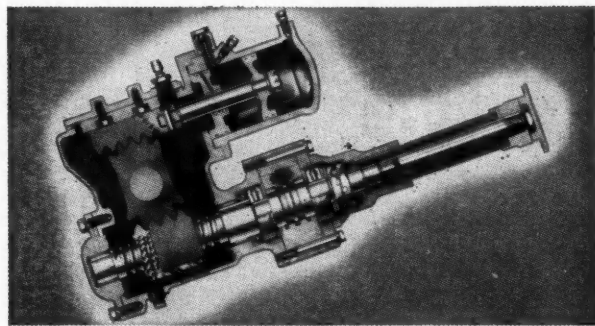
It's the *extra* payload that pays off—the additional lading that means more income . . . a greater return on your investment.

With Saginaw Steering's new hydraulic power steering gear you get this extra tonnage capacity . . . can often *double* front-axle payload without increasing truck size, or exceeding legal load limits.

Millions of miles of time-tested performance back up Saginaw's claim of superiority—its promise of increased earnings for you!

So, for extra payload—extra performance—extra profits . . . investigate the outstanding money-saving advantages of Saginaw hydraulic power steering gear. Whatever your requirements, you'll find Saginaw right for you.

IF IT'S EASY TO STEER—IT'S A SAGINAW GEAR



**SAGINAW HYDRAULIC POWER STEERING GEAR** combines best elements of modern heavy-duty steering gear with double-acting hydraulic cylinder and control drive; gives finger-tip steering ease under toughest going.

# Saginaw

STEERING GEAR  
DIVISION

General Motors Corporation, Saginaw, Michigan

**SGG PRODUCTS**

STEERING GEARS AND LINKAGES • PROPELLER  
SHAFTS • TRANSMISSION CONTROLS • TURN  
SIGNALS • DIESEL ENGINE PARTS • BALL BEARING  
SCREW AND NUT ASSEMBLIES • AUTOMOBILE JACKS



## New Product Descriptions

Continued from Page 194

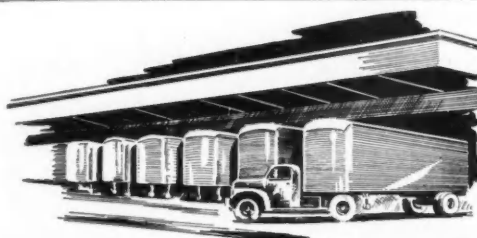
Remote push-button control is a safety feature. The 6-ft mast is topped by a 4-ft horizontal boom which swings through 360 deg. Hoist-O-Matic Co., Kansas City, Mo.

### P284. Light Truck Lift

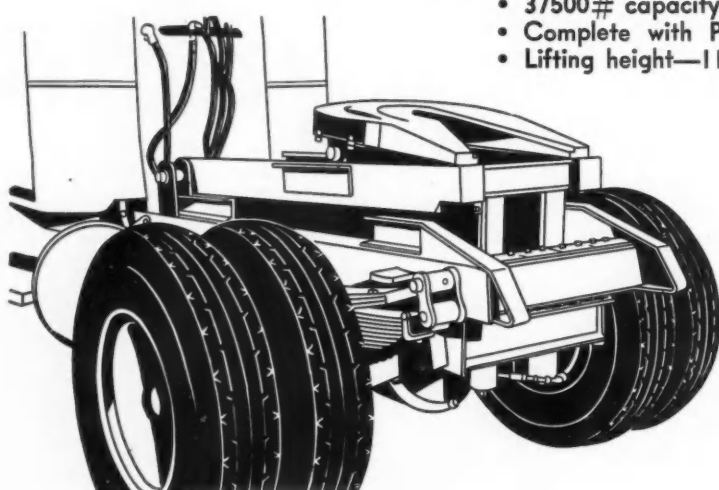
This 2-post lift, Model 27 Deluxe Shopmaster Lift is floor-flush when down and has completely automatic door action. The front cradle is self-

centering and self-adjusting and has a deep throat. Metal front wheel locator wells are made as an integral part of the front door assembly. Roller bearing, V-notched, extra extension, rear axle supports are reversible on rear rails and V-notched, roller bearing rear axle supports are self-seating within range of the top of the V. Automatic rear rail door operating rods are spring loaded. The Joyce-Cridland Co., Dayton, Ohio.

# A CEMCO



## TRAILER JOCKEY MEANS REAL SAVINGS IN TERMINALS



- 37500# capacity
- Complete with P.T.O.
- Lifting height—11"

**A HYDRAULIC POWERED FIFTH WHEEL**  
*—no more hand cranking  
of landing gear*

Wide awake truckers instantly recognize potential savings. Cuts spotting time in half. Easier on equipment—on drivers. It fits nearly every 34" to 37" tractor frame. Don't fail to investigate! Write for more information and names of users near you.

**CEMCO INDUSTRIES, INC.,**  
**GALION, OHIO**

## Late Product Flashes

A heavy-duty fork-shovel attachment for lift trucks, with 7¼-in.-long tines, is announced by the Industrial Truck Div. of the Clark Equipment Co.

A complete new line of a-c transformer welders in which welding heat adjustment is accomplished electrically through an ac-dc reactor is announced by the Hobart Brothers Co., Troy, N. Y.

In addition to their highly successful No. 20 Fast Oil Changer, Chisholm Industries, Inc., of Lynn, Mass. announces the new No. 15—a smaller unit, for automotive, farm and marine use.

A new off-the-road tire in its Universal line, especially designed for front wheels where easier steering is desired, is announced by the B. F. Goodrich Co., Akron, Ohio.

Ammco Tools, Inc., North Chicago, Ill., is now producing their new Model 2200 Brake Piston Injector. This tool is designed to insert the brake piston assemblies in the wheel cylinders of Chrysler, Plymouth, Dodge, and DeSoto cars.

Standard Pressed Steel Co., Jenkintown, Pa., announces that its new "HAL-LOWELL" Uni-Truck hand truck has unique, triple-welded angle construction of the nose, which eliminates danger of ends tearing loose.

The Miracle Power Div. of the AP Parts Corp. announced the new dfg-123 "Lubri-Sprayer" No. 5200, which contains dfg-123 under pressure and is designed expressly for application by spraying.

A cageless, roller bearing that eliminates roller skewing is now in production at the Bearing Div. of the McGill Mfg. Co., Valparaiso, Ind. The new product is designated as the Guiderol Bearing.

A new light weight, low cost ground clamp of 300 ampere capacity, the GC-3 has been developed by the Lincoln Electric Co., Cleveland, Ohio.

Interchangeability of drawers, which makes it possible for every buyer to custom build his own cabinet, is the biggest feature of a completely new PROTO "Toolmobile" tool cabinet, announced by the Plomb Tool Co., Los Angeles, Calif.

Blackhawk Mfg. Co. of Milwaukee has announced a new wrench kit for transmission lubrications service.

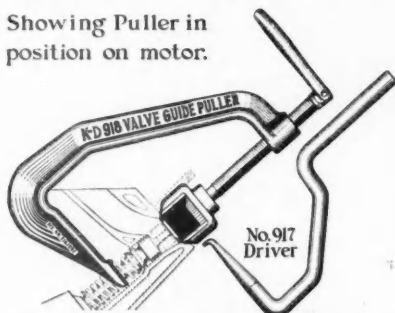
The Weatherhead Co. of Cleveland, Ohio has introduced a new flexible hose and reuseable end coupling designed to replace damaged gasoline, oil, air or hydraulic lines on heavy duty equipment.

Adoption of a new formula for "Motor Rythm" Whiz motor tune-up oil has recently been announced by the R. M. Hollingshead Corp., Camden, N. J.

(TURN TO PAGE 240, PLEASE)

# Hard jobs + K-D tools = EASY

Showing Puller in position on motor.



## 920 VALVE GUIDE PULLER SET for Ford V-8's, '32 to date\*

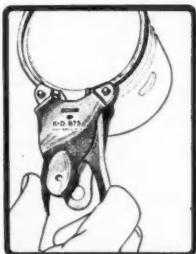
No matter how tight assemblies are stuck they're up and out in minutes! First drive retainers out with 917 Driver; apply 918 Puller, and twist the handle. Easy! Use 923 Adaptor for 6 cyl. to '48.

\*K-D 930, & 935 for '49-'50 Lincoln, big Ford Truck. Use K-D 700 for 6 cyl. after '48.



## 608...a NEW KIND of valve keeper INSERTER! For small size keepers used in these models:

Buick, Cadillac, Chrysler, Dodge, DeSoto, Plymouth, Hudson, Kaiser-Frazer, Olds, Packard. A must for '49-'50 Ford-built motors! Easy loading, self supporting on valve stem. Long enough to reach remote valves on Chrysler motors, thin enough for Fords. 8" long.



## 875 PISTON RINGER removes, installs rings. Saves fingers.

Handles all makes, types, sizes rings up to 4" diam. Saves fingers, doesn't twist or stretch rings. Illustration left above: gripping ring to install it. Right: installing or removing. Handy, pocket size. Correct tool for the job.



## 337 COMPRESSOR SET for Cadillac, LaSalle V-8 since '35

Set includes 335 Compressor and 336 Valve Keeper Insert. With set, one mechanic can remove and replace all

valves without walking from side to side for each valve. Unique brake provides positive locking at height desired. Sturdily constructed. Internal gear and rack for safety, power, durability. Retainers replaced with 336, entered thru lower jaw opening. A lifetime tool.



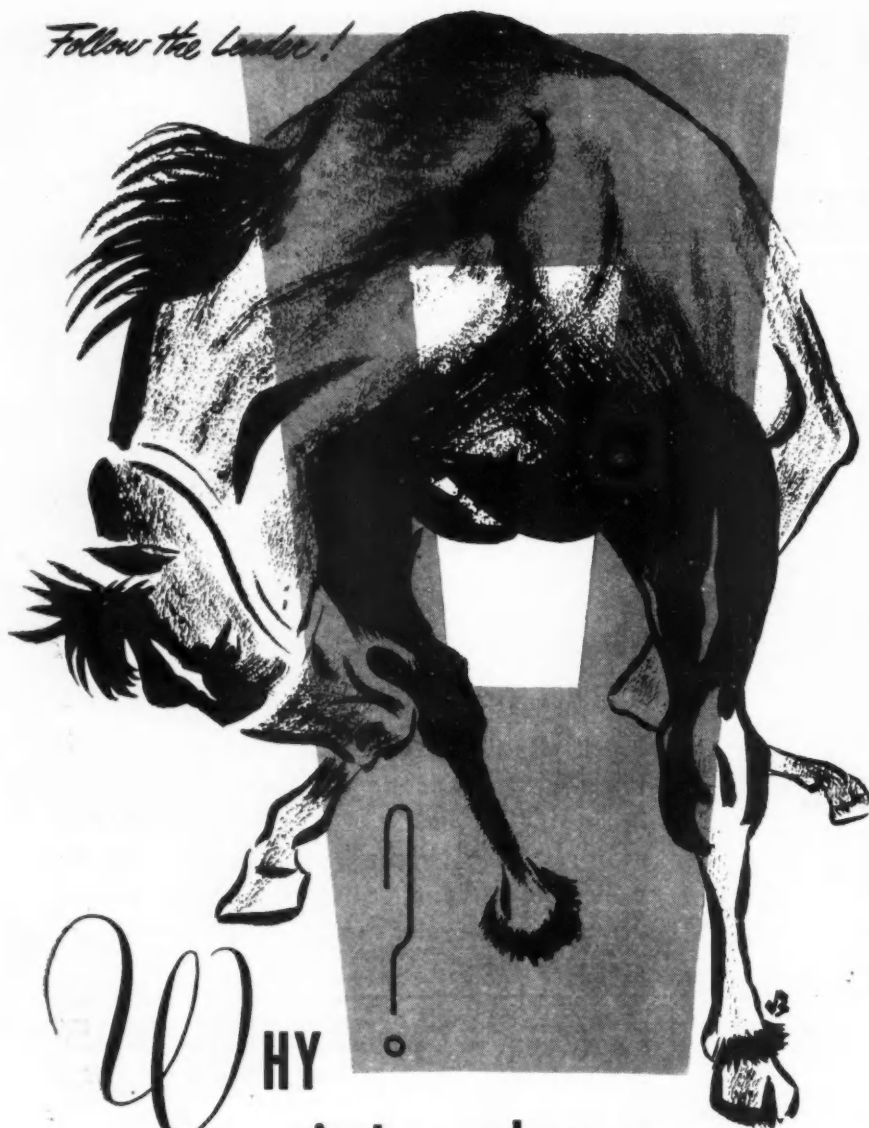
## VACUUM CUP GRINDERS... for hand grinding valves

For Ford built and other motors using flat head or unslotted valves. K-D 503, cup dia. 1 3/8". K-D 505 (Dual cups) 1 1/8" and 1 3/8". K-D synthetic rubber Adaptors for mechanical grinders: 503 (metal retaining ring) 1 3/8" dia. cup; 507, 509 (plain cups) 1 1/8", 1 3/8" dia.



K-D MFG. CO. — LANCASTER, PA. — HAMILTON, ONT.

*Follow the Leader!*



# WHY pitch and toss

Hendrickson tandems assure a smooth, level ride . . .

- . . . the anti-friction ball and socket joints provide the necessary flexibility to prevent distortion.
- . . . the torque rod permits complete absorption of axle torque.
- . . . the equalizer beam provides absolute equal distribution of weight between the axles—reduces each bump 50%.



**HENDRICKSON MOTOR TRUCK COMPANY**

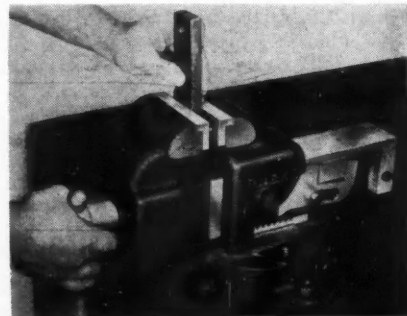
8001 West 47th Street • Lyons (Chicago Suburb) Illinois

## New Product Descriptions

Continued from Page 196

### P286. Quick-Acting Vise

The vise opens or closes to any position in one second through a push-pull action which eliminates spinning the handle. A turn and a half of the handle counter-clockwise—and the jaw slides

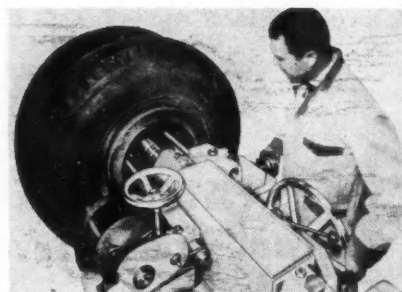


in "neutral" to any position. A specially designed no-pinch handle protects the operator.

The vise is provided with either a swivel or stationary base and is built in one size only: namely 4-in. It weighs 58-lb. Dodge Mfg. Corp., Mishawaka, Ind.

### P287. Brake Drum Lathe

No. 310 brake drum lathe, the "Big Brute," turns and grinds, 5-in. truck, bus and airplane drums and does the



job complete in 2-min per drum. The unit has a travel of 15-in. Van Norman Co., Springfield, Mass.

### P288. Wrench and Stand

This 14-in. Stillson type wrench is made of Alcoa aluminum forged, heat treated and machined. It is said to weigh only half as much as similar wrenches made of iron or steel. Jaw inserts are replaceable and interchangeable—made of steel and plated with cadmium. An available pipe vise stand is made of aluminum, too, with a cast aluminum top. J. H. Williams & Co., Buffalo, N. Y.

(TURN TO PAGE 242, PLEASE)



## SELF-CONTROL STARTS HERE



AND TO RESTORE  
ENGINE PERFORMANCE

## OIL-CONTROL STARTS HERE

To Stop Oil-Pumping, Replace Worn  
Connecting Rod Bearings

Like the small-fry "family terror," worn engine bearings can cause *real* trouble! Worn main, connecting rod and cam bearings are the *first* cause of oil-pumping. They can shorten the life and decrease the efficiency of the best of new piston rings.

Give the rings a chance—check for worn bearings on every overhaul. Replace, in

sets, with Genuine Federal-Mogul Oil-Control Bearings. They can mean the difference between a half-done job and *top engine performance!*

### FEDERAL-MOGUL SERVICE

(Division of Federal-Mogul Corporation)

DETROIT 13, MICHIGAN



control oil-pumping where it starts—REPLACE WITH

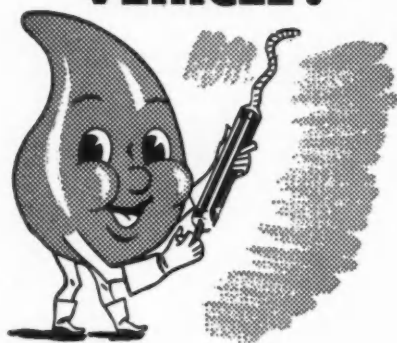
# FEDERAL-MOGUL



## BEARINGS

## QUESTION:

What grease gives  
better service  
at all grease —  
lubricated points  
of any  
**AUTOMOTIVE  
VEHICLE?**



## ANSWER:

**Shell Retinax "A"  
Grease**

### **5** BIG SAVINGS FOR FLEET OWNERS:

1. **Lower consumption.** Users report up to 50% savings in the amount of grease required per "grease job."
2. **Minimum inventory.** Shell Retinax "A" replaces 4 separate greases.
3. **No costly errors** are possible. Operators cannot apply wrong grease.
4. **Quicker servicing** is achieved because there is no time wasted changing guns.
5. **Minimum equipment** required since multiple guns and dispensers are eliminated.

WILL NOT FAIL IN WHEEL BEARINGS... STAYS LONGER IN CHASSIS FITTINGS... RESISTS WASHING... IDEAL FOR WATER-PUMP SERVICE... ADDED PROTECTION FOR UNIVERSAL JOINTS.



#### **SHELL OIL COMPANY**

50 West 50th St., New York 20, N. Y., or  
100 Bush St., San Francisco 6, California

Please send me the full story of Shell Retinax "A" Grease for fleet lubrication.

Name \_\_\_\_\_

Address \_\_\_\_\_

State \_\_\_\_\_

## New Product Descriptions

Continued from Page 240

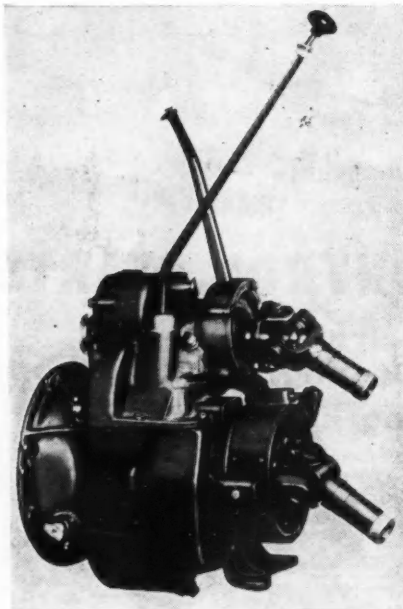
### **P289. Truck Wheel**

A new light-weight, high-strength steel disc wheel is available in two sizes: 20x7.50 and 22x7.50. The 20x7.50 wheel weighs 82.8 lb, as compared to the standard carbon steel wheel weighing 99 lb, for a saving of 16.2 lb per wheel. The 22x7.50 wheel weighs 91.8 lb, whereas the standard carbon steel wheel weighs 110 lb, realizing a saving in the new wheel of 18.2 lb.

This new Budd wheel made for a ten stud mounting is completely interchangeable with Budd's present standard steel wheel. The Budd Co., Philadelphia, Pa.

### **P290. Power Take-Off**

A top-mounted power take-off known as the Tangen, eliminates the need of a conventional V-belt drive. The unit is direct-connected to the vehicle engine, operating at full efficiency whether vehicle is in motion or stationary. Speed is governed by crankshaft speed with-



out relation to transmission range. It delivers 98 per cent of engine torque transmitted direct from main drive gear in transmission. Mobile Power, Inc., Lansing, Mich.

### **P291. Brake Conditioner**

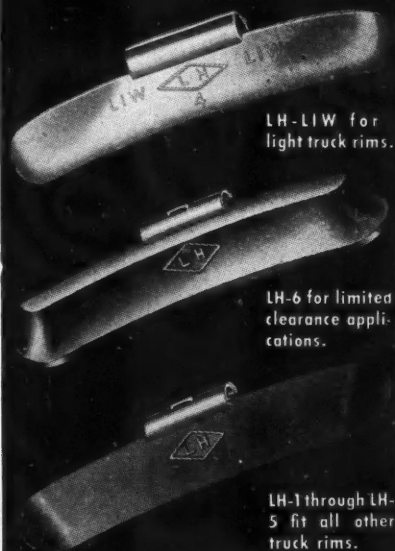
The brake shoe conditioner, a machine for preparing brake shoes for foolproof (TURN TO PAGE 244, PLEASE)

**THE ONLY  
COMPLETE  
LINE OF  
TRUCK  
WEIGHTS**



**BALANCE**

**WEIGHTS**



- Streamlined Design.
- Simplified Identification and Installation.
- Finer Graduations for Finer Balance.
- Improved Manufacturing—Each Weight Individually Pressure-Cast.
- 90,000,000 L & H Balance Weights Have Been Sold.

*The Pioneer and Leader*  
**WHEEL WEIGHTS, INC.**

DETROIT 34, MICHIGAN

# Top Companies are "Sold on" REEVES ARMY TWILL

WITH PEPSI-COLA  
**REEVES ARMY TWILL**



SMAR that leading forms

SPUR Specifies uniforms of  
**REEVES ARMY TWILL**



For Smarter Appearance  
Longer Wear • Better Morale

Progressive companies—like Spur—are alert to the importance of smart uniforms for their employees. That's why more and more leading firms specify Reeves Army Twill. They know that this famous fabric means greater economy through longer wear. It's extra-durable because it's made only of the highest quality cotton... Sanforized\* and vat-dyed in colors that are fast to sun, water and perspiration. Make sure your men look right on the job. Insist on Reeves Army Twill when you buy.

\*Residual shrinkage less than 1%

Uniform illustrated is made for SPUR by the Turner Mfg. Co., Nashville, Tenn.

**Reeves ARMY TWILL**  
MADE TO GOVERNMENT SPECIFICATIONS  
SANFORIZED

**REEVES ARMY TWILL**

"RIGHT" ON THE JOB  
WITH DR. PEPPER

**Reeves ARMY TWILL**  
MADE TO GOVERNMENT SPECIFICATIONS  
SANFORIZED

SMART-LOOKING employees reflect a smart organization. That's why the purchasing agents for Dr. Pepper choose uniforms of durable Reeves Army Twill. Made only from carefully selected, highest quality cotton... Twill is Sanforized and vat-dyed in colors that are fast to sun, water and perspiration. It

Dr. Pepper

Dr. Pepper

Dr. Pepper

Dr. Pepper

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Dr. Pepper

Dr. Pepper

Dr. Pepper

**REEVES ARMY TWILL**  
FOR UNIFORMS  
THAT MEAN BUSINESS  
ON ANY JOB

**Budweiser**

**Budw**



THERE'S good reason why leading companies from Coast to Coast specify uniforms and work clothes of Reeves Army Twill. They know the value of smart-looking employees and the economy of longer-wear.

And there's good reason why Reeves Army Twill gives these qualities. For this famous fabric is made only of the finest cotton, Sanforized\*, and vat-dyed in colors that are fast to sun, water and perspiration.

For greater economy...better employee morale and increased public approval—insist on Reeves Army Twill in your work clothing and uniforms. Write for full information.

\*Residual shrinkage less than 1%

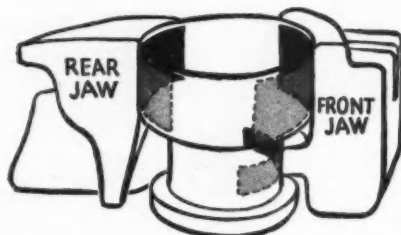
**REEVES BROTHERS, INC.** 54 WORTH STREET, NEW YORK 13, N. Y.

REPRESENTATIVES IN: Akron • Atlanta • Boston • Chicago • Dallas • Los Angeles • Philadelphia • Portland, Oregon • St. Louis • Montreal • Toronto

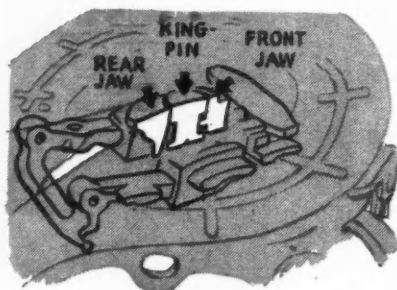
COMMERCIAL CAR JOURNAL, September, 1950



# A **BIG** GRIP ON **SAFETY!**



See for yourself (in this cutaway view) how ASF Safety 5th Wheel jaws grip king-pins high up—at the top! Why is this good? Because here's where the king-pin has largest diameter (for greatest bearing area)—and coupling up next to the trailer plate cuts bending leverage way down. Just check this feature with other 5th wheels and see how they rate, by comparison.



For the largest jaw-on-pin bearing area, by far—for positive locking, freedom from backlash, easy operation—always get ASF Safety 5th Wheels. They're favorites everywhere for money-saving stamina.

Write for Folder!  
**AMERICAN STEEL FOUNDRIES**  
Automotive Division  
400 N. MICHIGAN AVE., CHICAGO 11, ILL.

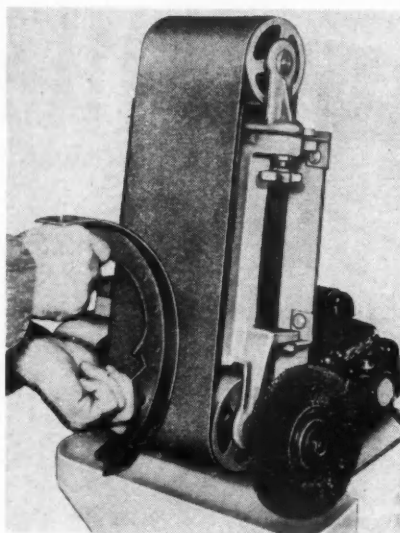


FOR TRACTOR-TRAILER COUPLING

## New Product Descriptions

Continued from Page 242

bonding, removes old lining particles that adhere to the shoe, dirt, rust, grease plating and all other foreign matter that might interfere with an entirely satis-



factory, permanent, safe bond. A wire buffer, is provided that may be used for other shop purposes in addition to cleaning the "T" section of the shoe. Heavy

duty grinder dust remover to insure safe, clean operation is standard on most models. Barrett Equipment Co., 2 St & Cass St., St. Louis, Mo.

### P292. Micrometer

A new Range Micrometer, Model 400 RM, with three interchangeable extensions, measures any part, from a pin to a large piston, within a 0 to 4-in. range. Each extension is individually adjustable to compensate for wear. Featured is the crowned face of the anvil (patent pending) which is said to eliminate "gagging" when adjusting the tool to take the measurement. Each model is furnished with ratchet stop and locknut. Central Tool Co., Cranston, R. I.

END

Please resume your reading on Page 80

### N. J. Permits On-Premise Inspection

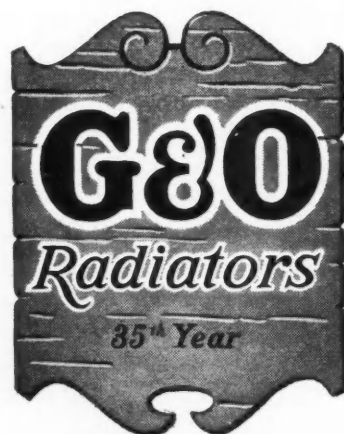
New Jersey's Motor Vehicle Director has announced a new policy, effective September 1, which will permit fleet owners of 100 or more vehicles to have those vehicles inspected on their own premises under state supervision. He said removal of large fleets from inspection lanes should reduce the waiting time of individual motorists and also result in a saving in the matter of wear and tear on station equipment.

Watch for **COMMERCIAL CAR JOURNAL**

November issue of the

**BUYERS' DIRECTORY NUMBER FOR FLEETS**

It is the only up-to-date listing of truck, bus and parts manufacturers.



They're Good

**THE G&O MANUFACTURING CO.**  
NEW HAVEN CONNECTICUT



## Their average is 125,000 ... What's yours?

The man with folded arms in the picture is Mr. G. D. Shields, one of the owners of Harrison-Shields Transportation Lines, Inc., of Pittsburgh, Pa.

He's discussing his maintenance records with Mr. E. C. Zallon, Supt. of Maintenance, and a Gulf Sales Engineer.

*They average 125,000 miles before reringing is necessary. In some cases, units have operated over 143,000 miles before either the head or pan were removed.*

Mr. Shields will tell you that one major reason they have such an enviable maintenance record is their constant use of Gulfube Motor Oil H.D. They have used it for several years, ever since it was placed on the market. They have been Gulf customers for 25 years.

### What do you average?

If you would like to improve your mileage be-

tween reringing jobs, we sincerely believe it will pay you well to investigate the merits of GULF-LUBE MOTOR OIL H.D.

It is an outstanding heavy-duty type oil that not only provides proper lubrication, but keeps engines clean as well. It has a rich paraffin base. Gulfube Motor Oil H.D. provides a particularly strong oil film—the kind of film that insures superior lubrication under the toughest operating conditions.

### Better compression assured!

A high-quality detergent motor oil, Gulfube Motor Oil H.D. helps keep rings clean and free, insuring better compression and proper oil control.

Find out how Gulfube Motor Oil H.D. can help you reduce maintenance costs. Contact your nearest Gulf Office today, and have a Gulf Sales Engineer call.



GULF OIL CORPORATION • GULF REFINING COMPANY

Gulf Building—Pittsburgh, Pa.

Sales Offices—Warehouses—Located in principal cities and towns throughout Gulf's marketing territory

**SAFE TRUCKS  
ARE  
PROFIT TRUCKS**



**Install  
ELSTON  
ELECTRIC SANDERS**

**ON EVERY TRUCK**

**PROTECT YOUR DRIVERS  
AND EQUIPMENT!  
ARRIVE ON SCHEDULE!**

Greatest safety insurance any truck can have . . . and at such low cost. Icy, slippery roads are not only one of the nation's most deadly highway killers, they annually cost trucking companies millions of dollars in damage to costly equipment and in loss of important time.

ELSTON equipped trucks get payloads in on schedule! The positive dash control switch assures instant traction to start fast, stop sure, or to control treacherous skids. Drivers everywhere want the protection that only ELSTON ELECTRIC SANDERS can give them.

ELSTON SANDERS are quality built. Once installed they are ready for long, trouble-free service on any make of truck.



**FOR SAFETY'S SAKE  
USE SAFETY GRIT!**

Scientifically processed to assure the best possible traction. Non-freezing, non-clogging. Comes in convenient 50 lb. moisture-proof bags.

**SAFETY IS OUR BUSINESS**

**ALSO ROAD SANDERS FOR  
PASSENGER CARS TAXI CABS  
SCHOOL BUSES  
LARGE BUSES RAIL EQUIPMENT**

Write for Catalog and name of nearest distributor.  
**HIGHWAY SAFETY APPLIANCES, INC.**  
ST. PAUL 4, MINN.



## RANDOLPH'S RIDDLES

### Scrambled Trailer Parts

Each of the items described below can be made up from the letters contained in the word TRAILER. How many of them can you find? No letter may be used in a word more often than it occurs in TRAILER itself.

1. A roofing material - - - -
2. Painting - - - -
3. A nobleman - - - -
4. A duck - - - -
5. Something to drink - - - -
6. Somethink else to drink - - - -
7. A liquid measure - - - -
8. A casing - - - -
9. A rodent - - - -
10. A wading bird - - - -

Answer on Page 252

### Make a Frame Out of Steel

The steel frame of a truck can be worked out on paper if you have a pencil and some patience. Beginning with the word STEEL, simply change one letter at a time and form a new word each time according to the definitions, until the FRAME is formed.

	STEEL
Precipitous	- - - -
Wool bearers	- - - -
Transparent	- - - -
One who services horses'	- - - -
hoofs	- - - -
Footgear	- - - -
Injections	- - - -
Narrow openings	- - - -
Laths	- - - -
A blackboard	- - - -
Quench	- - - -
A bit of snow	- - - -
Part of a fire	- - - -
	FRAME

Answer on Page 252

## Truman Urges Reduction in Highway Aid

In a recent letter to the Senate Public Works Committee, President Truman asked that the Federal highway-aid bill be reduced at least to the level of \$500 million. The bill as passed by the House would authorize \$570 million and the Senate recommended that this be raised to \$620 million. In addition the President asked that amounts for secondary roads be reduced to the \$150 million as contained in the bill passed by the House. This is a \$50 million decrease from that proposed by the Senate.

Other recommendations made by the President in his letter include retention of the present matching provisions requiring equal sharing of highway costs by the states and the Federal government; a requirement that Federal aid funds be limited to the Federal road system rather than used for local or county roads; reduction from \$25 million to \$10 million for access roads to military establishments.

Mr. Truman also criticized the provision which would permit the use of Federal-aid highway funds which may become available in the future to retire certain road construction bonds issued by state and local governments.

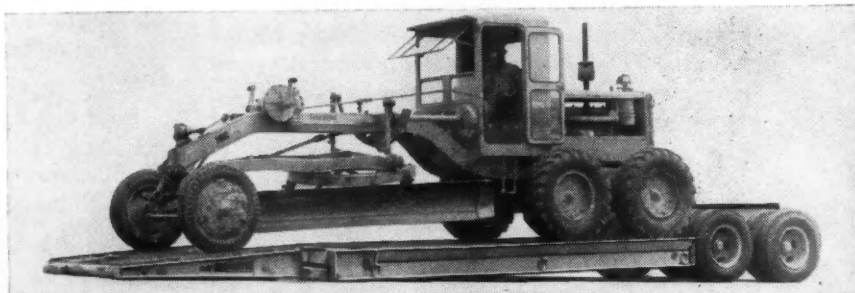
## Twin Reports Profit

A profit of \$139,206 for its first six months operations was announced by Twin Coach Co., Kent, Ohio. This is equivalent to 16 cents per common share after provision for preferred dividends. In the like 1949 period the company lost \$417,563.

1950 sales for the six months were \$7,693,000 as against \$9,712,000 last year. However, the company's order backlog on August 10 totaled \$18,360,000, which is more than double the 1949 backlog.

A good portion of the backlog is due to widespread demand for the company's new line of propane-powered buses, 500 being now on order from the Chicago Transit Authority.

## Folding Gooseneck Trailer



"Folding gooseneck" lowered to the ground forms ramp to permit grader to be driven off. Manufactured by the Martin Machine Co., Kewanee, Ill. in 20-, 27-, and 32-ton capacities, the

unit features lower platform height and its one-man operation. After loading, gooseneck is raised into position and engages tractor fifth wheel with king pin located under ramp



# Enjoy More **COST-SAVING SERVICE** with **YORK-HOOVER** "Job Built" Bodies



## They're Built to Meet **YOUR** Particular Needs

Regardless of what your hauling problem might be . . . YORK-HOOVER will be glad to consult with you . . . and then suggest a body design to meet your particular transportation problem . . . a body that will do *your* job *better* and *faster*.

More than 50 years experience assures a *qualified* opinion in which all factors that contribute to *low cost* operation are considered. That's why we say "job built" bodies by YORK-HOOVER are *cost-savers* for *you*. Before you buy . . .

write for complete details about  
York-Hoover "Job Built" Bodies



# York - Hoover

YORK, PENNSYLVANIA

# Corporation

**Body Division**

# NEW PROTO<sup>\*</sup>

## "Wrenchund"

is a  
peach for  
reach!



Do you "bark" your knuckles using normal length wrenches for hard pulls? If so, buy new PROTO\*extra long wrenches—45.6% longer than standard, on average. They provide GREATER LEVERAGE, HOLDING POWER, CLEARANCE and REACH! Six long box wrenches are available, featuring comfortable shanks, beveled openings for quick placement, polished heads and lustrous plating. Nine extra long combination box and open end wrenches are made, with box wrench features plus slim open end jaws. Stop scratching for the answer to hard pulls. Flee to your dealer for PROTO\* l-o-n-g wrenches.

Write for catalog to  
**PLOMB TOOL COMPANY**  
2269U Santa Fe Ave.  
Los Angeles 54, Calif.

\*PROTO means **PRO**fessional **TOO**ls. It's the new name for the tools that have been preferred for 43 years.



## QUICK QUIZ

By G. W. Bahl

1. The rubber used by the industry, in one year, is ample to provide every man in the nation with a new raincoat, hat and overshoes, for a total of

- ( ) 109,000 long tons
- ( ) 119,000 " "
- ( ) 129,000 " "
- ( ) 139,000 " "

2. To produce 1,110,000 new trucks and 50,000 trailers yearly the trucking industry uses enough tin to plate all the cans needed for the nation's annual production of canned fruit. In pounds, this would exceed

- ( ) 4,500,000
- ( ) 5,500,000
- ( ) 6,500,000
- ( ) 7,500,000

Answers on Page 250

## RANDOLPH'S RIDDLES

### Left Turn Tips

Do you have trouble making a left turn? Then try it this way: Beginning with the word LEFT below, change one letter at a time and form a new word each time according to the definitions until the TURN is made.

	L	E	F	T
A season of fasting	—	—	—	—
Curved	—	—	—	—
A light hit in baseball	—	—	—	—
A stopper on a barrel	—	—	—	—
A town	—	—	—	—
To be on fire	—	—	—	—
	T	U	R	N

Answer on page 250

### Transport and PM Show

A Transport Vehicle Show which will feature a series of preventive maintenance demonstrations is being scheduled for Madison Square Garden, New York City, Jan. 31 to Feb. 4, 1951. It is being sponsored by the Automotive Transport Trades Council.

Its purpose is to provide a common center for the showing of mechanical features of current models of trucks and trailers, body design and equipment, technical details of component parts and for the displaying of safety equipment and devices, parts and accessories and to provide a demonstration of standard techniques of preventive maintenance.

### Shell Develops Bottom Loading

A unique method of refueling aviation gasoline trucks from the bottom, thus insuring safer, easier and more economical loading operations, has been adopted by Shell Oil Co. at Washington Airport.

The key unit in the new method is a novel coupling and valve arrangement, linking the bottom of the truck with the free end of the delivery hose. The device prevents leakage and permits excellent control of the flow of gasoline. A special safety valve at the top of the truck prevents overflow. During filling operations, high octane aviation gasoline is pumped from two 5,000 gallon storage tanks at the rate of 200 gallons a minute.

### British Diesel Distributors

Arrangements are now being made for the distribution of the Rover Meteor and Meteorite diesel engines in this country. (See CCJ, May, pg. 57).

Upon the satisfactory completion of road testing of two "sample" truck-installed units, each of which will undergo a 100,000 mile trial on the "Cement Haul" route over the Sierra Nevada, a distributing company will be formed.

Mr. Arnold S. Rostan, c/o The South American Technical S.A., 1 William St., New York, will head up the new company.

### Classified Advertisement

Surplus sale. 75 new housetrailer door lock assemblies with sedan locking handles \$2.00 each. 1800 new piano hinges with 20 gauge steel 3/16 brass pin 48 in. long .40 cents each. 2000 new barrel door bolts, black japanned .03 cents each. 10,000 new #8x32 dural hex head elastic stop nuts \$15.00 lot. Ingersal used portable disc grinder & 50 feet hose \$95.00. Thor used 3/4 size electric screwdrivers (2) \$35.00 each. New 3/16 size nutrunner \$40.00. All F.O.B. Chicago perfect condition. B. H. Ives, 1321 West Fargo Ave., Chicago 26, Ill.

YOU CAN DEPEND ON  
**McCORD GASKETS**  
MOST CAR AND TRUCK  
MAKERS DO

McCORD CORPORATION  
Detroit, Michigan  
Gaskets • Radiators • Mufflers  
Pipes and Oil Retainers

**CRESCENT**

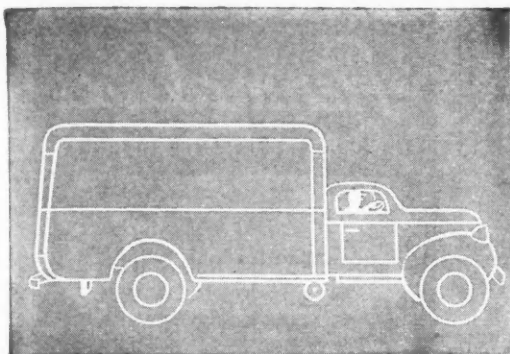
*Wiry Joe*

**AUTOMOTIVE CABLE**

Manufactured by  
THE CRESCENT COMPANY, Inc.  
Pawtucket, Rhode Island



**CHECK THE WIRE  
ON EVERY JOB**



trucks are  
made for delivering,  
**but...**



Put attention-getting PF decals on your trucks and watch them **SELL** as they **GO**—delivering a brand name impact with every delivery!

Comparative space on billboards or public transit vehicles costs thousands of dollars, but space on your trucks is **FREE!** Use it profitably... with solid selling PF decals. They're economical, easy to apply—your trucks are never out of service.

Manufacturer's Agents and Representatives: Write for information on territories now open!



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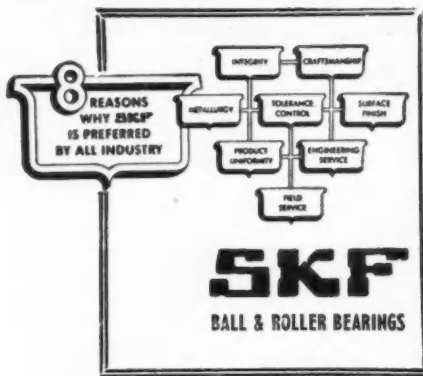
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TRADE MARK  
*is the name*

### Propane Line Introduced

A line of commercial engines, ranging from 162- to 250-hp, to operate on propane fuel was announced recently by Fageol Products Co., Kent, Ohio.

Consisting of four different models, the engines are built around one basic design with all major parts interchangeable.

Outstanding feature of these Fageol Propane Engines is their operation at a 10 to 1 compression ratio (15 to 1 ratio is available if desired). According to the manufacturer, this permits full utilization of propane's 125 octane rating. In addition to its reported economy, propane is odorless and colorless. It is reputed to be smoother running and to provide easier starting than any other fuel.

Engines are available for horizontal or vertical mounting, right or left hand installation, clockwise or counter-clockwise rotation.

### ICC to Control in Emergency

President Truman recently announced that he had no intention of reestablishing emergency agencies to administer the expanded operations of government necessitated by the fighting in Korea. The Interstate Commerce Commission, he said, would continue to control transportation. This statement indicates that there are presently no plans to revive the ODT.

### Tests by New Army Agency

Testing and approval of new-design transportation equipment has been placed in a new agency of the Army Transportation Corps, replacing the TC Board. The new Transportation Research and Development station at Fort Eustis, Va., will test, evaluate and recommend for procurement all types of equipment for improving Army transport. Manufacturers are encouraged to provide new ideas and items for test direct to the Station commanding officer, Lt. Col. R. D. Meyer.

### Quick Quiz

Questions on Page 248

1. 109,000 long tons of rubber is used each year.
2. Annual usage is 6,800,000 pounds.

### Left Turn Tips ANSWERS

L E F T  
L E N T  
B E N T  
B U N T  
B U N G  
B U R G  
B U R N  
T U R N

## Permalux

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